Alternate Application Procedures for Approval of Diesel Powered Equipment Under Part 36 Title 30 Code of Federal Regulations

U.S. Department of Labor
Mine Safety and Health Administration
Approval and Certification Center

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PC-4025-1
ASAP3003
1990

This publication is one of a series that is intended to aid those interested in applying for an approval of their mining product from the Mine Safety and Health Administration's (MSHA's) Approval and Certification Center. The A&CC series of publications outlines the Approval and Certification Center's standard procedures for investigations, applications, and testing.

Additional single free copies of this booklet are available from the:

Approval and Certification Center, Technical Support
Mine Safety and Health Administration
U.S. Department of Labor
R.R.# 1, Box 251
Industrial Park Boulevard
Triadelphia, West Virginia 26059

Approval and Certification Center
Division of Mechanical Safety

Alternate Application Procedures For Approval of Diesel-Powered Equipment Under Part 36 Title 30 Code of Federal Regulations

INTRODUCTION

This document outlines an alternate application procedure for requesting approval of equipment under Part 36, 30 CFR. This procedure will enable applicants to submit six assembly-type drawings instead of the thirty to forty individual drawings that are typically submitted. The critical specifications and information that are to be shown on the six drawings have been clearly outlined in these procedures. It is recommended that noncritical dimensions, specifications, and internal component details be omitted to obtain the full benefit of this procedure.

The anticipated benefits of this alternate application procedure are multifold. Due to the fact this procedure requires only critical specifications on drawings, changes to equipment not affecting these critical areas or the configuration of systems and components can be made to production drawings which have never been officially accepted by MSHA. Therefore, notification to MSHA will not be required resulting in a significant reduction in the number of requests for extension of approval or stamped revision acceptances (SRA's) presently submitted by manufacturers. However, if the accepted drawings are revised or if changes are made to any other previously accepted drawing, the modified drawings must be submitted to MSHA for acceptance through one of the existing programs (SRA, SNAP, new approval, or extension of approval). Changes such as the addition or deletion of critical items, or modification of the basic accepted configuration of assembly of component parts which alters the design as pictorially shown (for example, a significant relocation of component parts, or a change in operator compartment location, etc.) require modification of the drawing and acceptance by MSHA.

Documentation of all critical specifications for compliance with Part 36 requirements on six drawings can aid the manufacturer in establishing appropriate quality control procedures to assure exact conformance of each unit with the drawings and specifications accepted. These drawings will be used for any pre-approval or post-approval inspection of Part 36 equipment by MSHA. In addition, this procedure can aid in developing required factory inspection forms for submission to MSHA.

Sample drawings have been provided for a typical piece of equipment for which a Part 36 approval may be requested. All the critical specifications required to ascertain compliance with Part 36 requirements are included on these drawings along with examples of how to incorporate alternate/optional features and assemblies.

Minor locating dimensions of component parts have been omitted from the drawings and are ascertained by use of the pictorial view. Some requirements not easily documented pictorially have been satisfied by use of general notes and verification statements included on the drawings. Scale drawings are not required, but the pictorial views should be representative of the equipment with respect to relative sizes and locations of subcomponents, etc.

MSHA reserves the right to request additional dimensions and specifications to the assembly drawings if it cannot be determined that the requirements of Part 36, Title 30 CFR, have been met. In addition, MSHA reserves the right to ascertain accuracy of any specification through inspection and/or testing of the equipment and systems.

The sample drawings are considered as a representative of various equipment systems and features submitted for approval and are not intended to dictate design criteria. They are representations of the narrative material presented in the alternate application procedure. It is not the intent of MSHA to specifically require that all drawings submitted under this procedure be exactly like the sample drawings.

The objectives of this alternate application procedure are to enhance the approval process, reduce paperwork, improve processing time, and increase productivity. It should be noted that this application procedure is intended to be an <u>alternate procedure</u> to the elaborate procedures referenced in Part 36. It is the option of the applicant to determine under which procedure requests will be submitted for approval of equipment under Part 36.

The use of this alternate application procedure does not prohibit the use of other Approval and Certification Center (A&CC) programs such as SNAP's or SRA's when applicable. However, these programs cannot be used to update drawings of present Part 36 approved equipment to the alternate format.

Approvals are issued by MSHA's Approval and Certification Center for mobile diesel-powered transportation equipment for gassy,

noncoal mines and tunnels. Applications for these approvals are subject to the requirements of 30 CFR 36. A copy of Title 30, Mineral Resources, Code of Federal Regulations (30 CFR), which contains Part 36, can be purchased from:

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402
(202)783-3238

All the requirements in the following documents have been incorporated into the alternate application procedure. Copies of the complete documents are enclosed for reference purposes.

A. Part 36, Title 30, Code of Federal Regulations (CFR)
B. Neutral Start Methods on MSHA-Approved Equipment
C. Notification of MSHA Approval/Certification Number (MSHA No. 85-04-TSF)
D. Company Assigned Application Number (MSHA No. 85-02-TSF)
E. Part 5 Fee Application Procedures
F. Changes to Application Documents (MSHA No. 85-01-TSF)
G. Factory Inspection Form
H. RMA Bulletin No. IP-3-3/1985, Edition 2, Power Transmission Belt Technical Bulletin, Approved 1985
I. Part 36 Subassembly Certification Program (Program Information Bulletin No. 87-13-TSF)

In addition, the following documents relative to the Part 36 approval process are available upon request from A&CC:

1. Permissibility Checklist for Equipment Approved Under Part 36, 30 CFR (PC 4017-0)
2. Simplified Machine/Electrical Checklist for Part 36 Approval Applications, dated September 25, 1990
3. Supplemental Application Procedures Under Part 36 for Machines Containing Integral Electrical Systems, 30 CFR 36 (PC 4016-0)
4. Parts 32, 33, and 36 Stamped Revision Acceptance (SRA) Program (PC 4030-0)
5. Part 36 Stamped Notification Acceptance Program (SNAP) (PC 4029-0)
6. Diesel Engine Certification Applications, Parts 32 and 36, 30 CFR (PC 4020-0)
7. Diesel Safety Component Certification Applications, Part 36 (PC 4023-0)
8. Part 36 Field Modification Application Procedures (Electrical Lighting System) (PC 4015-0)

Information to be Included in an Application

Before preparing an application, the applicant should carefully review 30 CFR, Part 36 (see Enclosure A) and all information provided in this application procedure. An application for approval of mobile diesel-powered transportation equipment under Part 36 of Title 30 CFR shall be made by a letter of request. The letter shall include the vehicle type (unless it is a subassembly certification; see Enclosure I), model number, and a six-digit company assigned application number (see Enclosure D). The application fee shall be sent to MSHA and the appropriate information referenced on the application letter (see Enclosure E). Any manufacturer who has received an approval or is an applicant for approval must notify A&CC, Office of the Chief, of any change of company name, address, or corporate structure. Approvals will be granted only to those persons who design, manufacturer, assemble, or control the assembly of the vehicle. Applications will be accepted only if:

1. The equipment is completely developed, with the exception of basic diesel-powered chassis subassembly certification applications.

2. Either the safety component package is MSHA certified or an application for certification is currently being reviewed by MSHA. (Specify the MSHA Certification Number if the safety package has been certified, or if an application is currently in process, specify the manufacturer and the company's assigned application number).

3. Either the electrical components system has been previously evaluated by MSHA and assigned a Diesel-Electric Number (DExx number) or information pertaining to the electrical components system is submitted in accordance with the "Supplemental Application Procedures Under Part 36 for Machines Containing Integral Electrical Systems" (if applicable). Attention: If a new electrical system is being submitted which is similar to a previously evaluated electrical system, the DE number of the previously evaluated and accepted electrical system is to be included with the documentation submitted.

4. APPLICATIONS SUBMITTED UNDER THE ALTERNATE APPLICATION PROCEDURE MUST CONTAIN THE INFORMATION SPECIFIED IN THE "MANUFACTURER'S TECHNICAL REVIEW CHECKLIST." THE FOLLOWING DOCUMENTS ARE TO BE INCLUDED:

    - GENERAL ARRANGEMENT DRAWING

- FUEL SYSTEM DRAWING
- HYDRAULIC SYSTEM DRAWING (BRAKING/SAFETY SYSTEM/ STEERING SYSTEM)
- PNEUMATIC SYSTEM DRAWING (BRAKING/SAFETY SYSTEM)
- OPERATOR'S COMPARTMENT DRAWING
- APPROVAL PLATE DRAWING
- MACHINE FACTORY INSPECTION FORM
- MACHINE CHECKLIST
- ELECTRICAL SYSTEM PERMISSIBILITY CHECKLIST
- MACHINE/ELECTRICAL CHECKLIST (may be substituted for the MACHINE CHECKLIST and ELECTRICAL SYSTEM PERMISSIBILITY CHECKLIST)
- POWER SYSTEM CHECKLIST

ALL DOCUMENTS PROVIDED MUST BE PREPARED ACCORDING TO THE FORMAT OUTLINED IN THE "MANUFACTURER'S TECHNICAL REVIEW CHECKLIST."

All drawings of component parts submitted to the Mine Safety and Health Administration shall be exact duplicates of the original on file with the applicant (see Enclosure F).

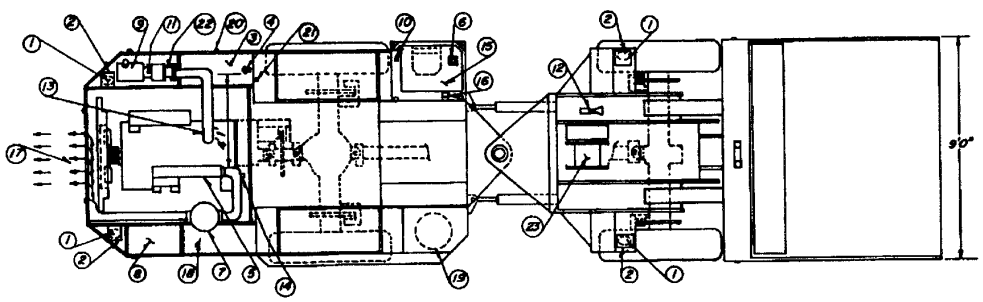
This information shall be submitted to the Mine Safety and Health Administration, Approval and Certification Center, Division of Mechanical Safety, RR#1, Box 251, Industrial Park Road, Triadelphia, West Virginia, 26059.

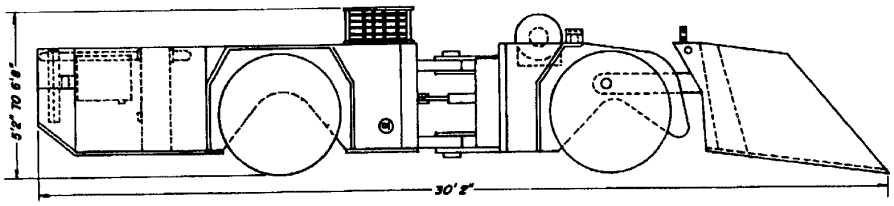
After the drawings and specifications have been reviewed, MSHA will make arrangements with the manufacturer for MSHA personnel to perform a pre-approval factory inspection of the equipment, if necessary.

ATTENTION: The items in the "Manufacturer's Technical Review Checklist" are all the items A&CC will evaluate as required by Part 36, Title 30 CFR. The items in this checklist identify conformance with all the specific requirements of Part 36 and commonly identified machine features which must be addressed to comply with Section 36.20. A&CC will remain alert to other machine features which have a high probability of causing a hazard; however, the manufacturer has the responsibility of providing protection against those hazards.

All applicants are encourage to contact A&CC for additional clarification prior to submitting an application. The Chief, Mine Equipment Branch, is responsible for processing diesel approval applications and can be reached at (304)547-0400, extension 411.

SAMPLE





BILL OF MATERIAL

ITEM #	DESCRIPTION
01	HEADLIGHTS
02	HEADLIGHT GUARDING
03	FUEL TANK
04	FUEL FILLER CAP
05	EXHAUST MANIFOLD
06	FIRE EXTINGUISHER - CLASS 2A 10BC NFPA (5 LB.) MINIMUM
07	SCRUBBER
08	MAKE-UP TANK
09	AIR CLEANER
10	AIR CLEANER SERVICE INDICATOR
11	AIR CLEANER SERVICE INDICATOR TAP IN POINT
12	HORN
13	INTAKE SYSTEM VACUUM TEST PORT
14	EXHAUST SYSTEM BACKPRESSURE TEST PORT
15	OPERATOR'S COMPARTMENT
16	APPROVAL PLATE
17	EXHAUST DILUTION
18	HYDRAULIC TANK
19	AIR TANK DRAIN PETCOCK
20	FUEL TANK DRAIN PLUG
21	FUEL SYSTEM MANUAL SHUTOFF
22	INTAKE FLAME ARRESTER
23	WINCH

NOTES

1. Model K9 Scoop.
2. 36,000 lbs. tare weight.
3. 56,000 lbs. gross weight.
4. Air filter service indicator restrictor setting: 15" H_2O.
5. Air cleaner rating: 400 CFM at 5" H_2O.
6. The fuel tank drain plug and the fuel system manual shutoff are readily accessible to maintenance personnel.
7. Air tank drain petcock is readily accessible to maintenance personnel.
8. No air lines are connected to the intake system inby the flame arrester.
9. With the engine set up for operation at sea level and run at maximum RPM at torque stall, the exhaust gas is diluted such that it does not contain more than 0.5% CO, when measured in a vertical plane at a minimum of 2' from the exhaust gas discharge point on the machine.
10. Headlights, pushbuttons and other vulnerable electrical components are adequately protected against damage.
13. Method of affixing approval plate does not impair explosion-proof characteristics.

VERIFICATION STATEMENTS

1. Guards are provided to prevent rotating shafts from coming in contact with adjacent hydraulic, fuel, and electrical lines in the event of a shaft failure.
2. The machine operator(s) is/are protected from the hazards associated with pinch points and rotating parts by proper guarding where possible. Otherwise, warnings are provided.
3. All V-belts are static conducting per RMA Bulletin No. IP-3-3/1985, Edition 2, approved 1985, Power Transmission Belt Technical Bulletin.

DO NOT CHANGE WITHOUT MSHA APPROVAL

REVISION							

TOLERANCES EXCEPT AS NOTED	MINING EQUIPMENT SAFETY LABORATORY		
DECIMAL ±		SCALE NTS	DRAWN BY R. THOMAS
FRACTIONAL ±	TITLE GENERAL ARRANGEMENT MODEL K9 SCOOP		APPROVED BY G. DVORZNAK
ANGULAR ±	DATE 8-09-88	DRAWING NUMBER 1 REV	ORIGINAL ISSUE

MANUFACTURER'S TECHNICAL REVIEW CHECKLIST

TABLE OF CONTENTS

I. REQUIRED DOCUMENT FORMATS

A. Types of Information - Each sheet of all documents must contain the following information in a clearly identified manner:

____ 1. Document Number - A document number must be clearly identified in the title block or labeled as a Drawing Number, Parts List or Bill of Materials, etc.

____ 2. Revision Level (alpha, numeric, etc.) - Documents with multiple revision blocks on one sheet must carry the same revision level in each block, e.g., revision block in upper right hand corner of the document must reflect the same revision level as the revision block in the lower left hand corner of the document.

ATTENTION: Document number must be kept separate from the revision information. Letter designations to be used as part of the document number must be included in the document number block.

____ 3. Company Name - The current name of the company responsible for the document must appear on each sheet.

____ 4. Title - The title of the document should be clearly identified.

____ 5. Sheet - Documents which are multiple sheets, i.e., more than one sheet to identify the product listed in the title block, must be numbered with a Sheet Number to identify the total number of sheets required to fully identify the product in the title block.

ATTENTION: Only the sheet numbers need to appear on the drawing. Wording such as "Sheet 'X' of 'Y' sheets" is acceptable, but not required.

____ 6. Date - Usually found in the block which indicates the draftsman and generally refers to the original date of the drawing.

____ 7. "Do Not Change Without Approval of MSHA" notation - All documents must contain a statement indicating that changes in design must be authorized by MSHA before they are applied to approved equipment. Note that references to BOM or MESA are not permitted. It must reflect "MSHA", the current nomenclature.

____ 8. Documentation must be in English - Or translated into English.

____ 9. No pen or pencil notations are permitted on documents to be retained on file by MSHA. This does not include A&CC investigator markings used when comparing documents. All company proprietary stamps/date stamps on drawings are acceptable.

____10. All information on each document must be legible.

B. Required Drawing Format - In addition to the items listed in the above Items 1 through 10, drawings must contain the following four groups of information:

____ 1. Required Dimensions.

____ 2. Bill of Material - Items in the Bill of Material are to be numbered and listed in a column on the drawing. The items in the Bill of Material should be listed under their generic names; manufacturer or model number should not be specified unless requested by MSHA. These items are to be shown on the drawing by the item numbers.

____ 3. Notes are to be contained on the drawing. These notes reflect specific requirements of Part 36 and will be used to determine compliance.

____ 4. Verification Statements are to be contained on the drawing. These statements are an assurance provided by the company that the intent of the requirements are satisfied. The statements allow for company subjectivity while achieving compliance; however, these statements do require a heightened degree of responsibility by the manufacturer. The presence of these statements indicates that the machine will be constructed in a manner to provide this protection.

ATTENTION: No drawings associated with the certified components are to be submitted with the application for equipment approval.

II. REQUIRED DRAWINGS

DRAWING #1
GENERAL ARRANGEMENT DRAWING
NO. _____ REV _____

A. Required Dimensions

____ 1a. Overall machine length dimension.

____ 1b. Overall machine width dimension.

ATTENTION: It is recognized that the dimensions identified in Nos. 1a and b are nominal dimensions for reference purposes only and may vary with machine configuration. If the dimensions listed in 1a and 1b will vary within a known range, specify the range.

____ 2. Overall machine height dimension. (If the machine height is variable, specify the range. The overall height of the machine is to be defined with attachments in the tramming position to establish breathing zones for evaluating exhaust dilution.)

____ 3. Shortest distance between exhaust manifold and fuel filler cap. This dimension must be at least 12 inches. (This dimension is permitted to have a reasonable tolerance.)

B. Bill of Material - Required to be on Drawing

Items in the Bill of Material are to be numbered and listed in a column on the drawing. The items in the Bill of Material should be listed under their generic names; manufacturer or model number should not be specified unless requested by MSHA. These items are to be shown on the drawing by the item numbers.

____ 1. Headlights (at least one required on each end of the machine).

____ 2. Headlight protection (may be protected by position).

____ 3. Fuel tank (protected from damage by position or guarding - only one tank permitted and no provisions for attachment of auxiliary tanks).

_____ 4. Fuel filler cap.

_____ 5. Exhaust manifold.

_____ 6. Fire extinguisher; minimum of a Class 2A 10BC NFPA rated (5 lbs.)(must be protected from damage; must be easily accessible to the operator at all positions from which the machine can be operated).

_____ 7. Scrubber (must be protected from damage).

_____ 8. Make-up tank, if applicable.

_____ 9. Air cleaner (arranged so that only clean air enters the flame arrestor).

_____ 10. Air cleaner service indicator (if not in the Operator's Compartment).

_____ 11. Air cleaner service indicator tap in point (must be outby the flame arrestor).

_____ 12. Horn or other warning device (actual location may vary).

_____ 13. Intake system vacuum test port.

_____ 14. Exhaust system backpressure test port.

_____ 15. Operator's compartment.

_____ 16. Approval plate.

_____ 17. Exhaust dilution (show direction of air flow - must be directed away from operator and breathing zones of persons required to be along side or onboard the equipment).

_____ 18. Hydraulic tank.

_____ 19. Air tank drain petcock.

_____ 20. Fuel tank drain plug.

_____ 21. Fuel system manual shutoff.

_____ 22. Intake flame arrestor (must be protected from damage).

____ 23. Winch (if applicable).

C. Notes

Notes are to be contained on the drawing. These notes reflect specific requirements of Part 36 and will be used to determine compliance.

____ 1. Make and model number of the machine.

____ 2. Tare weight.

____ 3. Gross weight for cargo carrying equipment.

____ 4. Air filter service indicator restriction setting (the restriction setting of the indicator must be based on the maximum allowable vacuum at the point where the indicator is tied into the intake system).

____ 5. Original and alternate air cleaner CFM and vacuum ratings (the ratings shall be such that the air cleaner is capable of handling the maximum engine CFM at a vacuum reasonably below the air filter service indicator setting).

____ 6. If the air cleaner is an oil bath-type, the means to prevent overfilling is specified.

____ 7. The fuel tank drain and the fuel system manual shutoff valve are readily accessible to maintenance personnel.

____ 8. Air tank drain petcock is readily accessible to maintenance personnel.

____ 9. Headlights, pushbuttons, and other vulnerable electrical components are adequately protected against damage.

____ 10. With the engine set up for operation at sea level and run at maximum RPM at torque stall, the exhaust gas is diluted such that it does not contain more than 0.5% CO_2 when measured in a vertical plane at a minimum of 2 feet from the exhaust gas discharge point on the machine.

____ 11. No air lines are connected to the intake system inby the flame arrestor.

____ 12. Method of affixing approval plate does not impair explosion-proof characteristics.

The following note applies to anfo loading units:

____ 13. There are no electrical components on the anfo loading units other than self-contained battery-operated Class 1 headlights approved under Part 20 (i.e., 10C lights).

D. Verification Statements

Verification Statements are to be contained on the drawing. These statements are an assurance provided by the company that the intent of the requirements are satisfied. The statement allow for company subjectivity while achieving compliance; however, these statements do require a heightened degree of responsibility by the manufacturer. The presence of these statements indicates that the machine will be constructed in a manner to provide this protection.

____ 1. "Guards are provided to prevent rotating shafts from coming in contact with adjacent hydraulic, fuel, and electric lines in the event of a shaft failure."

____ 2. "The machine operator(s) is/are protected from the hazards associated with pinch points and rotating parts by proper guarding where possible; otherwise, warnings are provided."

____ 3. "All V-belts are static conductive per RMA Bulletin No. IP-3-3/1985, Edition 2, approved 1985, Power Transmission Belt Technical Bulletin." (see Enclosure H)

____ 4. For anfo loading units, "Hoses used in connection with the transfer of anfo are of the semi-conductive type, having a resistance of not less than 5,000 ohms per foot with no more than 2 megohms for the total length. Wire-countered hose is not used."

____ 5. For anfo loading units and lube units, in addition to fire extinguishers, "A fire suppression system has been installed in accordance with the fire suppression system manufacturer's recommendations to provide additional fire protection as necessitated by the quantity of flammable material on board these units."

____ 6. For personnel elevating vehicles (e.g. scissors lift), "The personnel elevating vehicle is designed to prevent free descent and other hazards to persons in the work area in the event of a hydraulic or pneumatic failure. All applicable ANSI Standards were considered and are utilized to the extent applicable in support of this verification statement."

DRAWING #2
FUEL SYSTEM DRAWING
NO. _____ REV _____

A. Required Dimensions

No dimensions are required on the Fuel System Drawing.

B. Bill of Material - Required to be on Drawing

Items in the Bill of Material are to be numbered and listed in a column on the drawing. The items in the Bill of Material should be listed under their generic names; manufacturer or model number should not be specified unless requested by MSHA. These items are to be shown on the drawing by the item numbers.

____ 1. Manual shutoff valve (located between the fuel tank and first fuel filter).

____ 2. Safety system fuel shutoff valve.

____ 3. Fuel filters.

____ 4. Piping (supply and return lines).

____ 5. Water separator (if equipped).

____ 6. Fuel tank.

____ 7. Fuel tank drain plug (not a valve or petcock).

____ 8. Fuel tank filler cap.

C. Notes

Notes are to be contained on the drawing. These notes reflect specific requirements of Part 36 and will be used to determine compliance.

____ 1. All seams normally wetted by fuel are welded.

____ 2. Tank capacity is _____ gallons.

____ 3. The fuel tank drain plug is locked by means of _____ (an NPT plug is considered self-locking).

____ 4. Fuel tank minimum wall thickness is _____ inches (must be greater than 1/16").

D. Verification Statements

Verification statements are to be contained on the drawing. These statements are an assurance provided by the company that the intent of the requirements are satisfied. The statements allow for company subjectivity while achieving compliance; however, these statements do require a heightened degree of responsibility by the manufacturer. The presence of these statements indicates that the machine will be constructed in a manner to provide this protection.

____ 1. "The fuel filler cap is self-closing and any of its parts which are removed during the addition of fuel are secured. The fuel tank is vented to atmosphere, but the vent restricts the outflow of fuel."

DRAWING #3
HYDRAULIC SYSTEM DRAWING
NO. _____ REV _____

The Hydraulic System Drawing is to be an ANSI symbol schematic. The drawing is to be comprised of the following three systems or portions of systems as outlined below:

____ The hydraulic steering system
____ The hydraulic braking system
____ Lines tying machine hydraulic system to hydraulically operated engine shutdown system (if applicable)

A. Required Dimensions

No dimensions are required on the Hydraulic System Drawing.

B. Bill of Material

Items in the Bill of Material are to be numbered and listed in a column on the drawing. The items in the Bill of Material should be listed under their generic names; manufacturer or model number should not be specified unless requested by MSHA. These items are to be shown on the drawing by the item numbers.

At a minimum, list all the hydraulic valves and components shown on the drawing. These are to include:

____ 1. Gauges - specify the segment(s) of the system(s) they monitor.

____ 2. Valves - specify the function(s) they control.

____ 3. Hydraulic starter, if applicable.

____ 4. Neutral start mechanism (if tied to the hydraulic system).

ATTENTION: If the neutral start feature is a mechanical feature rather than part of the hydraulic system, it is to be described in a narrative on the Operator's Compartment Drawing. If the neutral start feature is hydraulic, it is to be shown on the Hydraulic Drawing.

____ 5. For hydraulically released parking brakes, a means is provided which insures the parking brake remains

released while the vehicle is being trammed. (Not applicable if approximately 150% of release pressure is continuously supplied to hydraulically release the park brake.)

____ 6. For hydraulically released parking brakes, park brake control must be able to apply parking brake from operator's compartment without shutting off the machine.

ATTENTION: All hydraulic controls and gauges not located in the operator's compartment are so noted on this drawing.

C. Notes

Notes are to be contained on the drawing. These notes reflect specific requirements of Part 36 and will be used to determine compliance.

The following notes only apply for hydraulic service brakes and hydraulically released parking brakes:

____ 1. Detailed narrative description of the operation of the complete service brake system.

____ 2. Detailed narrative description of the operation of the complete parking brake system.

____ 3. Detailed narrative description of the complete adjustment procedures for the parking brake and service brake, if applicable.

D. Verification Statements

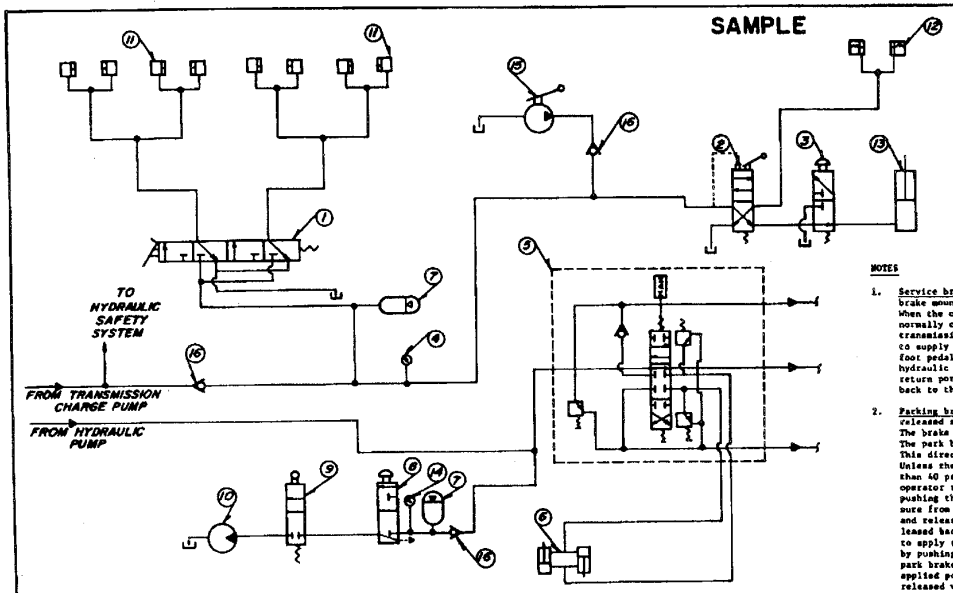
Verification statements are to be contained on the drawing. These statements are an assurance provided by the company that the intent of the requirements are satisfied. The statements allow for company subjectivity while achieving compliance; however, these statements do require a heightened degree of responsibility by the manufacturer. The presence of these statements indicates that the machine will be constructed in a manner to provide this protection.

____ 1. "Sintered metallic friction materials are not used, except in internal wet disc brake systems."

____ 2. For hydraulic service brakes, "The service brake is capable of stopping and holding the fully loaded

equipment stationary, as long as the operator is applying the brake, up to a _____% sine grade in both the forward and reverse directions of travel." (Attention: A minimum of a 15% grade is required. In addition, this value must be consistent with the corresponding value in the Machine Checklist or Machine/Electrical Checklist, as applicable.)

SAMPLE



BILL OF MATERIAL

ITEM #	DESCRIPTION
01	SERVICE BRAKE VALVE
02	MANUAL PARK BRAKE VALVE
03	PARK BRAKE TEST VALVE
04	BRAKE SYSTEM PRESSURE GAUGE
05	STEERING CONTROL VALVE
06	STEERING CYLINDERS
07	HYDRAULIC ACCUMULATORS
08	HYDRAULIC START VALVE
09	HYDRAULIC NEUTRAL START VALVE
10	HYDRAULIC STARTER
11	SERVICE BRAKE
12	SPRING APPLIED PARK BRAKES
13	TRANSMISSION DECLUTCH CYLINDER
14	STARTING SYSTEM PRESSURE GAUGE
15	HAND PUMP
16	CHECK VALVE

NOTES

1. Service brake narrative: The service brake consists of a caliper disc brake mounted at each wheel and is controlled by a dual brake valve. When the operator depresses the foot-operated dual brake valve, this normally closed brake valve opens allowing hydraulic pressure from the transmission charge pump to flow simultaneously out of two outlet ports to supply the front and rear calipers. When the operator releases the foot pedal, the inlet ports of the dual brake valve are blocked, removing hydraulic pressure from the front and rear caliper disc brakes. The return ports in the brake valve open allowing hydraulic pressure to flow back to the transmission reservoir.

2. Parking brake narrative: The parking brake consists of a hydraulically released spring applied caliper disc brake mounted on the transmission. The brake is released by pressure from the transmission charge pump. The park brake releases when the manual park brake valve is pulled out. This directs hydraulic pressure to the caliper disc brake releasing it. Unless the hydraulic pressure to the manual park brake valve is greater than 40 psi, it will not stay out and the brake will reapply when the operator releases the park brake control. The park brake is applied by pushing the manual park brake valve in, which diverts the hydraulic pressure from the transmission charge pump to the transmission declutch valve and releases the hydraulic pressure holding the caliper disc brake released back to the transmission reservoir causing the spring in the caliper to apply the brake. The park brake can also be used as an emergency brake by pushing the manual park brake valve in. When the pressure to the manual park brake valve drops below 40 psi, it automatically shifts to the brake applied position applying the park brake. The park brake can also be released without the machine running by using the hand pump to supply pressure to release the park brake. Once pressure is supplied to the system by the hand pump, the brake system can be applied and released in the same manner as when pressure is supplied to the brake circuit by the transmission charge pump.

3. Park brake adjustment procedure: The piston assembly of the caliper disc park brake threads into the caliper housing. The brake may be adjusted by turning the piston assembly using the hex provided on the end cap. Before turning the piston assembly, the set screw locking the piston assembly must be removed and the pressure from the spring pack must be relieved. The pressure from the spring pack may be relieved by removing the retainer on the bolt through the center of the end cap and turning the bolt counterclockwise until the spring retainer bottoms out against the end cap. At this point, the bolt cannot be turned any further. Now the piston assembly can be turned by using the hex at the end of the end cap. The piston assembly should be turned until 0.020 inches remain between the brake pad and the disc. This distance can be measured with a feeler gage. When the correct distance has been obtained, the set screw which holds the piston in place must be reinstalled. Next, the spring retainer bolt can be turned clockwise until it contacts the end cap. Then the retainer on the bolt can be reinstalled to lock it in position. The brake is then ready to be put into service once again.

VERIFICATION STATEMENTS

1. Sintered metallic friction materials are not used, except in internal wet disc brake systems.

2. The service brake is capable of stopping and holding the fully loaded equipment stationary, as long as the operator is applying the brake, up to a 15% sine grade in both the forward and reverse directions of travel.

3. For hydraulically released parking brakes, the parking brake is capable of holding the fully loaded equipment stationary on a 15% sine grade in both the forward and reverse directions of travel when the total amount of friction material wear, as determined by the measurement procedure outlined in Verification Statement No. 4, is 0.25". The parking brake will hold the fully loaded equipment stationary despite any contraction of brake parts, exhaustion of any nonmechanical source of energy, or leakage of any kind.

4. For hydraulically released parking brakes, the total amount of friction material wear without readjusting the brakes at which the parking brake will hold on the 15% sine grade is 0.25". (This total amount of friction material wear is determined by measuring the maximum total clearance between the friction material(s) and the mating surface(s), with the parking brake fully released. When applied, the parking brake will hold the fully loaded equipment on the maximum specified grade when the friction material wear is 0.25" and measured by the method described above.)

5. The hydraulic operating pressure continually supplied to keep the parking brake released is approximately 150% of the design hydraulic release pressure of the parking brake.

6. Actuation of other hydraulic control systems does not impede or otherwise diminish hydraulic braking, steering, and/or safety system capability(ies).

7. No stored hydraulic energy which will cause machine articulation is available after the machine is stopped and shut down.

8. The hydraulic starting system is designed to prevent accidental engagement while engine is running.

DO NOT CHANGE WITHOUT MSHA APPROVAL

REVISION								

TOLERANCES EXCEPT AS NOTED: DECIMAL ±, FRACTIONAL ±, ANGULAR ±

MINING EQUIPMENT SAFETY LABORATORY

SCALE: NTS | DRAWN BY: P. THOMAS | APPROVED BY: G. DVORZNAK

TITLE: HYDRAULIC SYSTEM

DATE: 8-09-85 | DRAWING NUMBER: 3 REV ORIGINAL ISSUE

____ 3. For hydraulically released parking brakes, "The parking brake is capable of holding the fully loaded equipment stationary on a _____% sine grade in both the forward and reverse directions of travel when the total amount of friction material wear, as determined by the measurement procedure outlined in Verification Statement No. 4, is _____ inches. The parking brake will hold the fully loaded equipment stationary despite any contraction of brake parts, exhaustion of any non-mechanical source of energy, or leakage of any kind." (Attention: A minimum of a 15% grade is required. In addition, this value must be consistent with the corresponding value in the Machine Checklist or Machine/Electrical Checklist, as applicable.)

____ 4. The following Verification Statement must be provided for belleville spring-applied brakes:

For hydraulically released parking brakes, "The total amount of friction material wear without re-adjusting the brakes at which the parking brake will hold on the _____% sine grade is _____ inches." (This total amount of friction material wear is determined by measuring the maximum total clearance between the friction material(s) and the mating surface(s), with the parking brake fully released. When applied, the parking brake will hold the fully loaded equipment on the maximum specified grade when the friction material wear is 0.25" and measured by the method described above.)

5. For hydraulically released parking brakes, one of the following Verification Statements regarding tram/brake conflict must be supplied:

____ a. "The hydraulic operating pressure continually supplied to keep the parking brake released is approximately 150% of the design hydraulic release pressure of the parking brake."

____ b. "A means is provided which insures the parking brake remains released while the vehicle is being trammed."

____ 6. "Actuation of hydraulic control systems not shown on the drawing does not impede or otherwise diminish hydraulic braking, steering, and/or safety system capability(ies)."

____ 7. "No stored hydraulic energy which will cause machine articulation is available after the machine is stopped and shut down."

____ 8. (If so equipped), "The hydraulic starting system is designed to prevent accidental engagement while the engine is running."

DRAWING #4
PNEUMATIC SYSTEM DRAWING
NO. _____ REV _____

The Pneumatic System Drawing is to be an ANSI symbol schematic. The drawing is to be comprised of the following two systems or portions of systems as outlined below:

____ The pneumatic braking system
____ Lines tying pneumatic system to pneumatic safety system

At a minimum, the Pneumatic System Drawing is to show the braking system, if pneumatic, and components tied into the safety system which are not part of the certified safety system. The safety system is not to be shown as it has been addressed in the safety package certification.

A. Required Dimensions

No dimensions are required on the Pneumatic System Drawing.

B. Bill of Material

Items in the Bill of Material are to be numbered and listed in a column on the drawing. The items in the Bill of Material should be listed under their generic names; manufacturer or model number should not be specified unless requested by MSHA. These items are to be shown on the drawing by the item numbers.

At a minimum, list all pneumatic valves and components shown on the drawing. These are to include:

____ 1. Gauges - specify the segment(s) of the system(s) they monitor.

____ 2. Valves - specify the function(s) they control.

ATTENTION: All pneumatic controls and gauges not located in the operator's compartment are so noted on this drawing.

____ 3. Pneumatic starter, if applicable.

____ 4. Neutral start mechanism (if tied to the pneumatic system).

ATTENTION: If the neutral start feature is a mechanical feature rather than part of the pneumatic system, it is to be described in a narrative on the Operator's Compartment Drawing. If the neutral start feature is pneumatic, it is to be shown on the Pneumatic Drawing.

____ 5. Air tank.

____ 6. Horn valve, if applicable.

____ 7. Horn, if applicable.

____ 8. For pneumatically released parking brakes, a means is provided which insures the parking brake remains released while the vehicle is being trammed. (Not applicable if approximately 150% of release pressure is continuously supplied to pneumatically release the park brake.)

____ 9. For pneumatically released parking brakes, park brake control must be able to apply parking brake from operator's compartment without shutting off the machine.

____ 10. All compressors, including that used for the safety system and any auxiliary pneumatic system.

C. Notes

Notes are to be contained on the drawing. These notes reflect specific requirements of Part 36 and will be used to determine compliance.

The following notes only apply for pneumatic service brakes and pneumatically released parking brakes:

____ 1. Detailed narrative description of the operation of the complete service brake system.

____ 2. Detailed narrative description of the operation of the complete parking brake system.

____ 3. Detailed narrative description of the complete adjustment procedures for the parking brake and service brake, if applicable.

D. Verification Statements

Verification statements are to be contained on the drawing. These statements are an assurance provided by the company that the intent of the requirements are satisfied. The statements allow for company subjectivity while achieving compliance; however, these statements do require a heightened degree of responsibility by the manufacturer. The presence of these statements indicates that the machine will be constructed in a manner to provide this protection.

____ 1. "Sintered metallic friction materials are not used, except in internal wet disc brake systems."

____ 2. For pneumatic service brakes, "The service brake is capable of stopping and holding the fully loaded equipment stationary, as long as the operator is applying the brake, up to a _____% sine grade in both the forward and reverse directions of travel." (Attention: A minimum of a 15% grade is required. In addition, this value must be consistent with the corresponding value in the Machine Checklist or Machine/Electrical Checklist, as applicable.)

____ 3. For pneumatically released parking brakes, "The parking brake is capable of holding the fully loaded equipment stationary on a _____% sine grade in both the forward and reverse directions of travel when the total amount of friction material wear, as determined by the measurement procedure outlined in Verification Statement No. 4, is _____ inches. The parking brake will hold the fully loaded equipment stationary despite any contraction of brake parts, exhaustion of any non-mechanical source of energy, or leakage of any kind." (Attention: A minimum of a 15% grade is required. In addition, this value must be consistent with the corresponding value in the Machine Checklist or Machine/Electrical Checklist, as applicable.)

____ 4. The following Verification Statement must be provided for belleville spring-applied brakes:

For pneumatically released parking brakes, "The total amount of friction material wear without re-adjusting the brakes at which the parking brake will hold on the _____% sine grade is _____ inches." (This total amount of friction material wear is determined by measuring the maximum total clearance between the

friction material(s) and the mating surface(s), with the parking brake fully released. When applied, the parking brake will hold the fully loaded equipment on the maximum specified grade when the friction material wear is 0.25" and measured by the method described above.)

5. For pneumatically released parking brakes, one of the following Verification Statements regarding tram/brake conflict must be supplied:

____ a. "The pneumatic operating pressure continually supplied to keep the parking brake released is approximately 150% of the design pneumatic release pressure of the parking brake."

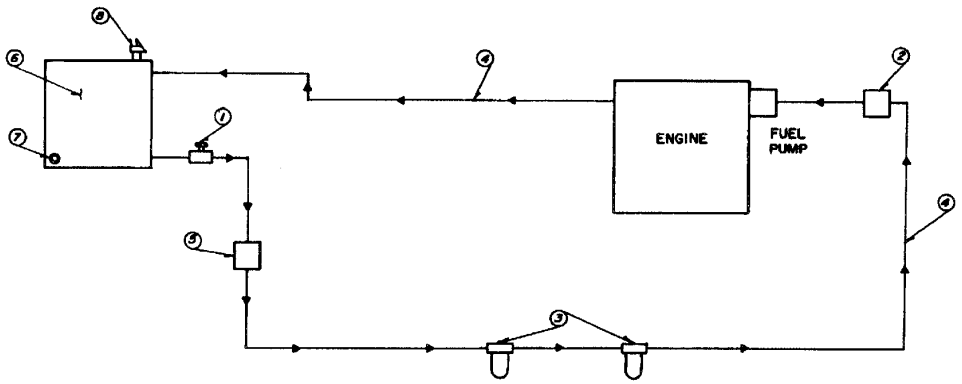
____ b. "A means is provided which insures the parking brake remains released while the vehicle is being trammed."

____ 6. "Actuation of pneumatic control systems not shown on the drawing does not impede or otherwise diminish pneumatic braking, steering, and/or safety system capability(ies)."

____ 7. (If so equipped), "The pneumatic starting system is designed to prevent accidental engagement while the engine is running."

____ 8. "Compressor governor settings are adjusted to prevent compressor surface temperatures from exceeding 302 degrees Fahrenheit under normal operating conditions."

SAMPLE



BILL OF MATERIAL

ITEM #	DESCRIPTION
01	MANUAL SHUTOFF VALVE
02	SAFETY SYSTEM FUEL SHUTOFF VALVE
03	FUEL FILTERS
04	PIPING
05	WATER SEPARATOR
06	FUEL TANK
07	FUEL TANK DRAIN PLUG
08	FUEL TANK FILLER CAP

NOTES

1. All seams normally wetted by fuel are welded.
2. Tank capacity is 25 gallons.
3. The fuel tank drain plug is locked by means of an NPT plug.
4. Fuel tank minimum wall thickness is 1/8" thick.

VERIFICATION STATEMENT

1. The fuel filler cap is self-closing and any of its parts which are removed during the addition of fuel are secured. The fuel tank is vented to atmosphere, but the vent restricts the ourflow of fuel.

DO NOT CHANGE WITHOUT MSHA APPROVAL

REVISION							

TOLERANCES EXCEPT AS NOTED
DECIMAL .x ±
FRACTIONAL ± 1/x
ANGULAR ±°

MINING EQUIPMENT SAFETY LABORATORY

SCALE NTS

DRAWN BY R.THOMAS
APPROVED BY S.DVORZNAK

TITLE FUEL SYSTEM

DATE 8-09-88

DRAWING NUMBER 2 REV ORIGINAL ISSUE

DRAWING #5
OPERATOR'S COMPARTMENT DRAWING
NO. _____ REV _____

A. Required Dimensions

No dimensions are required on the Operator's Compartment Drawing.

B. Bill of Material

Items in the Bill of Material are to be numbered and listed in a column on the drawing. The items in the Bill of Material should be listed under their generic names; manufacturer or model number should not be specified unless requested by MSHA.

Controls - specify the functions they control.

____ 1. Those controls listed in the pneumatic and hydraulic drawings and located in the operator's compartment.

____ 2. All safety shutdown system controls located in the operator's compartment.

____ 3. Braking controls.

____ 4. Steering control(s).

____ 5. Accelerator control(s).

____ 6. Manual intake air shutoff control.

____ 7. Warning device control (i.e., horn button - must be convenient to operator).

____ 8. Starting system control.

Gauges - specify the segments of the system they monitor.

____ 9. Those gauges listed in the pneumatic and hydraulic drawings and located in the operator's compartment.

____ 10. All safety system gauges located in the operator's compartment.

C. Notes

Notes are to be contained on the drawing. These notes reflect specific requirements of Part 36 and will be used to determine compliance.

____ 1. Narrative of operation of neutral start mechanism, if mechanical.

____ 2. If the means to prevent accidental engagement of the starting mechanism while the engine is running is not hydraulic or pneumatic, provide a narrative of the means (i.e., collar around button, pull start, etc.).

____ 3. All gauges and controls are labeled in the operator's compartment.

____ 4. Accelerator and brake controls are of automobile orientation (i.e., when facing controls, the brake is on the left and the accelerator is on the right). For machines with steering wheels, clockwise rotation turns machine to right and counterclockwise rotation turns machine to left with respect to the direction the operator is facing. For seating perpendicular to the direction of travel, the forward direction (front of machine/inby end) is to be defined and the automobile orientation of the controls are to be with respect to the forward direction of travel.

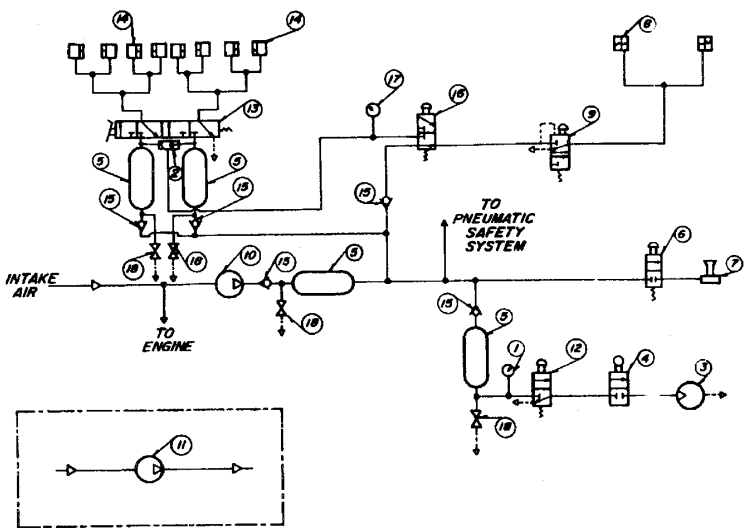
D. Verification Statements

Verification statements are to be contained on the drawing. These statements are an assurance provided by the company that the intent of the requirements are satisfied. The statements allow for company subjectivity while achieving compliance; however, these statements do require a heightened degree of responsibility by the manufacturer. The presence of these statements indicates that the machine will be constructed in a manner to provide this protection.

____ 1. "Locations of controls and gauges within the operator's compartment may vary with the exception of the relative positioning of the starting mechanism (if accidental starting is prevented by position) and the steering, braking and accelerator controls. Although exact locations may vary, no obstruction to operation and/or accessibility results."

____ 2. "All other machine controls and gauges located in the operator's compartment, but not listed on this Operator's Compartment Drawing, do not interfere with the functioning of those controls and gauges listed on the Operator's Compartment Drawing."

SAMPLE



NOTES

1. Service brake narrative: The service brake consists of a caliper disc brake mounted at each wheel and is controlled by a dual brake valve. When the operator depresses the foot-operated dual brake valve, this normally closed brake valve opens allowing air pressure from the two brake air tanks to flow simultaneously out of two outlet ports to supply the front and rear calipers. When the operator releases the foot pedal, the inlet ports of the dual brake valve are blocked, removing the pressure from the front and rear caliper disc brakes. The exhaust ports in the brake valve open releasing the pressure against the brakes.

2. Parking brake narrative: The parking brake consists of a pneumatically released spring applied caliper disc brake mounted on the transmission. The brake is released by pressure from the brake air tanks. The park brake is released when the manual park brake valve is pulled out. This directs air pressure to the caliper disc brake releasing it. Unless the air pressure to the manual park brake valve is greater than 50 psi, it will not stay out and the brake will reapply when the operator releases the park brake control. The park brake is applied by pushing the manual park brake valve in, which blocks the pressure from the brake air tanks and releases the air pressure holding the caliper disc brake released. The park brake can also be used as an emergency brake by pushing the manual park brake valve in. Also, when the pressure to the park control valve drops below 50 psi, it automatically shifts to the brake applied position applying the park brake. If the pressure in at least one of the service brake air tanks is 50 psi, the park brake can also be released without the machine running by pushing the park brake emergency release valve to pressurize the park brake circuit with pressure from the service brake air tanks. Once the park brake circuit is pressurized, the park brake can be released and applied in the same manner as when pressure is supplied from the main air tank.

3. Park brake adjustment procedure: The piston assembly of the caliper disc park brake threads into the caliper housing. The brake may be adjusted by turning the piston assembly using the hex provided on the end cap. Before turning the piston assembly, the set screw locking the piston assembly must be removed and the pressure from the spring pack must be relieved. The pressure from the spring pack may be relieved by removing the retainer on the bolt through the center of the end cap and turning the bolt counterclockwise until the spring retainer bottoms out against the end cap. At this point, the bolt cannot be turned any farther. Now the piston assembly can be turned by using the hex at the end of the end cap. The piston assembly should be turned until 0.020 inches remain between the brake pad and the disc. This distance can be measured with a feeler gage. When the correct distance has been obtained, the set screw which holds the piston in place must be reinstalled. Next, the spring retainer bolt can be turned clockwise until it contacts the end cap. Then the retainer on the bolt can be reinstalled to lock it in position. The brake is then ready to be put into service.

BILL OF MATERIAL

ITEM #	DESCRIPTION
01	STARTING SYSTEM PRESSURE GAUGE
02	BRAKE SYSTEM SHUTTLE VALVE
03	STARTER
04	NEUTRAL START VALVE
05	AIR TANK
06	HORN VALVE
07	HORN
08	SPRING APPLIED PARK BRAKE
09	MANUAL PARK BRAKE VALVE
10	ENGINE MOUNTED COMPRESSOR
11	AUXILIARY COMPRESSOR
12	STARTER VALVE
13	SERVICE BRAKE CONTROL VALVE
14	SERVICE BRAKE
15	CHUCK VALVE
16	PARK BRAKE EMERGENCY RELEASE VALVE
17	BRAKE SYSTEM PRESSURE GAUGE
18	AIR TANK DRAIN PETCOCK

VERIFICATION STATEMENTS

1. Sintered metallic friction materials are not used, except in internal wet disc brake systems.

2. The service brake is capable of stopping and holding the fully loaded equipment stationary, as long as the operator is applying the brake, up to a 15% nine grade in both the forward and reverse directions of travel.

3. For pneumatically released parking brakes, the parking brake is capable of holding the fully loaded equipment stationary on a 15% nine grade in both the forward and reverse directions of travel when the total amount of friction material wear, as determined by the measurement procedure outlined in Verification Statement No. 4, is 0.25". The parking brake will hold the fully loaded equipment stationary despite any contraction of brake parts, exhaustion of any nonmechanical source of energy, or leakage of any kind.

4. For pneumatically released parking brakes, the total amount of friction material wear without readjusting the brakes at which the parking brake will hold on the 15% nine grade is 0.25". (This total amount of friction material wear is determined by measuring the maximum total clearance between the friction material(s) and the mating surface(s), with the parking brake fully released. When applied, the parking brake will hold the fully loaded equipment on the maximum specified grade when the friction material wear is 0.25" and measured by the method described above.)

5. The pneumatic operating pressure continually supplied to keep the parking brake released is approximately 150% of the design pneumatic release pressure of the parking brake.

6. Actuation of other pneumatic control systems does not impede or otherwise diminish pneumatic braking capability and/or safety system capability(ies).

7. The pneumatic starting system is designed to prevent accidental engagement while engine is running.

8. Compressor governor settings are adjusted to prevent compressor surface temperature from exceeding 302°F under normal operating conditions.

DO NOT CHANGE WITHOUT MSHA APPROVAL

REVISION							

TOLERANCES EXCEPT AS NOTED	MINING EQUIPMENT SAFETY LABORATORY
DECIMAL	SCALE NTS
	DRAWN BY T. THOMAS
FRACTIONAL	TITLE PNEUMATIC SYSTEM
ANGULAR	DATE 8-09-89
	DRAWING NUMBER 4 REV ORIGINAL ISSUE

SAMPLE

NOTES

1. The neutral start valve is controlled by the gear shift lever. When the gear shift lever is in neutral, the neutral start valve is pushed in, which lets pressure through it to the starter when the starter valve is pushed.

2. To prevent accidental engagement of the starting mechanism while the engine is running, a collar is provided around the starter button.

3. All gauges and controls are labeled in the operator's compartment.

4. Accelerator and brake controls are of automobile orientation (i.e., when facing controls, the brake is on the left and the accelerator is on the right). For machines with steering wheels, clockwise rotation turns machine to right and counterclockwise rotation turns machine to left with respect to the direction the operator is facing. For seating perpendicular to the direction of travel, the forward direction (front of machine/inby end) is to be defined and the automobile orientation of the controls are to be with respect to the forward direction of travel.

VERIFICATION STATEMENTS

1. Locations of controls and gauges within the operator's compartment may vary with exception of the relative positioning of the starting mechanism (if accidental starting is prevented by position) and the steering, braking and accelerator controls. Although exact locations may vary, no obstruction to operation and/or accessibility results.

2. All other machine controls and gauges located in the operator's compartment, but not listed on this Operator's Compartment Drawing, do not interfere with the functioning of those controls and gauges listed on the Operator's Compartment Drawing.

BILL OF MATERIAL

ITEM #	DESCRIPTION
01	BRAKE SYSTEM PRESSURE GAUGE
02	STARTING SYSTEM PRESSURE GAUGE
03	SAFETY SYSTEM PRESSURE GAUGE
04	ENGINE OIL PRESSURE OVERRIDE BUTTON
05	ENGINE OIL PRESSURE GAUGE
06	SERVICE BRAKE PEDAL
07	ACCELERATOR PEDAL
08	EMERGENCY PARK BRAKE RELEASE
09	AIR CLEANER SERVICE INDICATOR
10	STOP BUTTON
11	NEUTRAL START VALVE
12	STEERING WHEEL
13	MANUAL PUMP FOR RELEASE OF PARKING BRAKE
14	STARTER BUTTON
15	HORN BUTTON
16	MANUAL INTAKE AIR SHUTOFF CONTROL
17	PARK BRAKE TEST BUTTON
18	MANUAL PARK BRAKE VALVE
19	GEARSHIFT LEVER

DO NOT CHANGE WITHOUT MSHA APPROVAL

MINING EQUIPMENT SAFETY LABORATORY

	SCALE NTS	DRAWN BY R. THOMAS
		APPROVED BY G. DVORZNAK

TITLE: OPERATOR'S COMPARTMENT

DATE	DRAWING NUMBER	REV.
8-09-85	5	ORIGINAL ISSUE

REVISION								

DRAWING #6
APPROVAL PLATE DRAWING
NO. _____ REV _____

The approval plate is to have spaces to specify the approval number, serial number, ventilation requirement, type of machine, model of machine, and name of the applicant.

A. Required Dimensions

Plate dimensions are to be in accordance with those dimensions specified below. Part 36 is not specific with respect to approval plate size; however, these dimensions are to be considered a reasonable minimum to clearly relay the information required on the approval plate.

____ 1. Length (4 inches minimum)

____ 2. Width (2-1/4 inches minimum)

B. Bill of Material

No Bill of Material is required for the Approval Plate Drawing.

C. Notes

Notes are to be contained on the drawing. These notes reflect specific requirements of Part 36 and will be used to determine compliance.

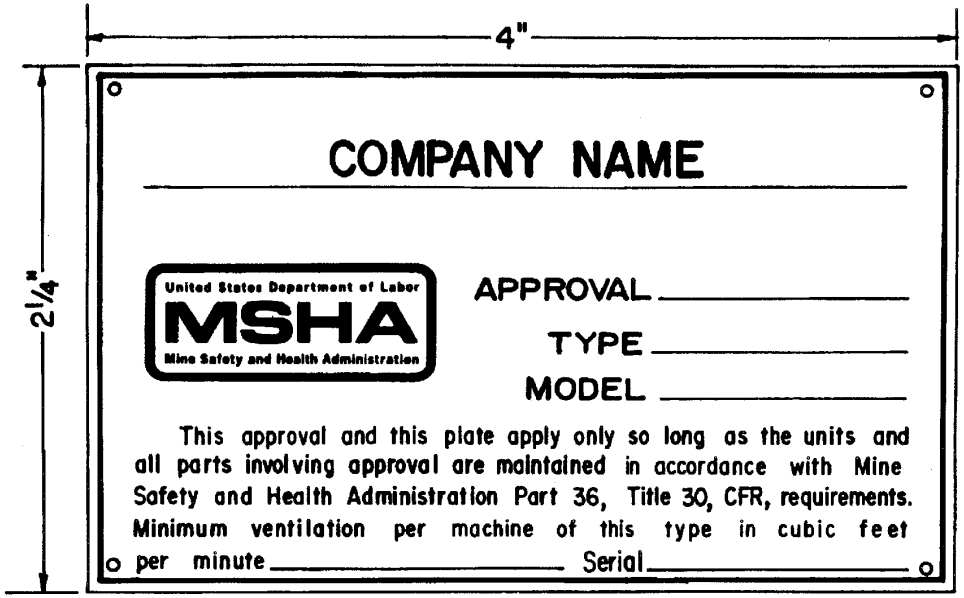
____ 1. Material is corrosion resistant.

____ 2. Method of marking is indelible.

D. Verification Statements

No Verification Statements are required on the Approval Plate Drawing.

SAMPLE



Notes

1. **Material is stainless steel.**
2. **Method of marking is etching.**

DO NOT CHANGE WITHOUT
MSHA APPROVAL

REVISION							

MINING EQUIPMENT SAFETY LABORATORY		
	SCALE *NTS*	DRAWN BY *R. THOMAS*
		APPROVED BY *G. DVORZNAK*
TITLE *APPROVAL PLATE*		
DATE *8-09-85*	DRAWING NUMBER *6*	REV *ORIGINAL ISSUE*

III. FORMS AND CHECKLISTS TO BE SUBMITTED BY THE APPLICANT

The following forms and checklists must be provided:

____ A. A Machine Factory Inspection Form which covers all the items noted in the sample "Factory Inspection Form for Part 36 Machine Features" (any unique additional inspection points which have been required are to be noted).

____ B. A Machine Checklist which contains all of the checks specified on the sample "Machine Checklist" (reference Program Circular PC 4017-0, "Permissibility Checklists for Equipment Approved Under Part 36, 30 CFR") (if applicable).

____ C. An Electrical System Permissibility Checklist which contains all of the checks specified on the sample "Electrical System Permissibility Checklist" (reference Program Circular PC 4017-0, "Permissibility Checklists for Equipment Approved Under Part 36, 30 CFR") (if applicable).

____ D. A Machine/Electrical Checklist which contains all of the checks specified on the sample "Machine/Electrical Checklist" (reference memorandum dated September 19, 1990, on the Simplified Machine/Electrical Checklist) (if applicable). Attention: The Machine/Electrical Checklist may be substituted for the Machine Checklist and Electrical System Permissibility Checklist.

____ E. A Power System Checklist which contains all of the checks specified on the sample "Power System Checklist" (reference Program Circular PC 4017-0, "Permissibility Checklists for Equipment Approved Under Part 36, 30 CFR"). Attention: Checklists prepared by the Diesel Power Systems Branch (DPSB) will be accepted without further evaluation.