

## § 18.81

(3) List of all components (see Figure 2 in Appendix II) identifying each according to its certification number or the approval number of the machine of which the component was a part.

(4) Specifications for:

(i) Overcurrent protection of motors.

(ii) All wiring between components, including mechanical protection such as hose conduits and clamps.

(iii) Portable cable, including the type, length, outside diameter, and number and size of conductors.

(iv) Insulated strain clamp for machine end of portable cable.

(v) Short-circuit protection to be provided at outby end of portable cable.

(c) MSHA reserves the right to inspect and to retest any component(s) that had been in previous service, as it deems appropriate.

(d) When MSHA has determined that all applicable requirements of this part have been met, the applicant will be authorized to attach an approval plate to each machine that is built in strict accordance with the drawings and specifications filed with MSHA and listed with MSHA's formal approval. A design of the approval plate will accompany the notification of approval. (Refer to §§ 18.10 and 18.11.)

(e) Approvals are issued only by Approval and Certification Center, Box 201B Industrial Park Road, Dallas Pike, Triadelphia, W. Va. 26049.

[33 FR 4660, Mar. 19, 1968, as amended at 43 FR 12314, Mar. 24, 1978; 52 FR 17514, May 8, 1987]

### **§ 18.81 Field modification of approved (permissible) equipment; application for approval of modification; approval of plans for modification before modification.**

(a) An owner of approved (permissible) equipment who desires to make modifications in such equipment shall apply in writing to make such modifications. The application, together with the plans of modifications, shall be filed with Approval and Certification Center, RR 1, Box 251, Industrial Park Road, Triadelphia, WV 26059.

(b) Proposed modifications shall conform with the applicable requirements of subpart B of this part, and shall not substantially alter the basic functional

## 30 CFR Ch. I (7-1-06 Edition)

design that was originally approved for the equipment.

(c) Upon receipt of the application for modification, and after such examination and investigation as may be deemed necessary by MSHA, MSHA will notify the owner and the District office of the mine workers' organization having jurisdiction at the mine where such equipment is to be operated stating the modifications which are proposed to be made and MSHA's action thereon.

[33 FR 4660, Mar. 19, 1968, as amended at 43 FR 12314, Mar. 24, 1978; 60 FR 35693, July 11, 1995]

### **§ 18.82 Permit to use experimental electric face equipment in a gassy mine or tunnel.**

(a) *Application for permit.* An application for a permit to use experimental electric face equipment in a gassy mine or tunnel will be considered only when submitted by the user of the equipment. The user shall submit a written application to the Assistant Secretary of Labor for Mine Safety and Health, 1100 Wilson Blvd., Room 2322, Arlington, Virginia 22209-3939, and send a copy to Approval and Certification Center, RR 1, Box 251, Industrial Park Road, Triadelphia, WV 26059.

(b) *Requirements—(1) Construction.*  
(i) Experimental equipment shall be so constructed that it will not constitute a fire or explosion hazard.

(ii) Enclosures designed as explosion-proof, unless already certified, or components of previously approved (permissible) machines, shall be submitted to MSHA for inspection and test and shall meet the applicable design requirements of subpart B of this part. Components designed as intrinsically safe also shall be submitted to MSHA for investigation.

(iii) MSHA may, at its discretion, waive the requirements for detailed drawings of component parts, inspections, and tests provided satisfactory evidence is submitted that an enclosure has been certified, or otherwise accepted by a reputable testing agency whose standards are substantially equivalent to those set forth in subpart B of this part.

(2) *Specifications.* The specifications for experimental equipment shall include a layout drawing (see Figure 1 in Appendix II) or photograph(s) with the components, including overcurrent-protective device(s) with setting(s) identified thereon or separately; a wiring diagram; and descriptive material necessary to insure safe operation of the equipment. Drawings already filed with MSHA need not be duplicated by the applicant, but shall be properly identified.

(c) *Final inspection.* Unless equipment is delivered to MSHA for investigation, the applicant shall notify Approval and Certification Center, RR 1, Box 251, Industrial Park Road, Triadelphia, WV 26059, when and where the experimental equipment will be ready for inspection by a representative of MSHA before installing it on a trial basis. Such inspection shall be completed before a permit will be issued.

(d) *Issuance of permit.* When the inspection discloses full compliance with the applicable requirements of this subpart, the Assistant Secretary will issue a permit sanctioning the operation of a single unit in a gassy mine or tunnel, as designated in the application. If the applicant is not the assembler of the equipment, a copy of the permit also may be sent to the assembler.

(e) *Duration of permit.* A permit will be effective for a period of 6 months.

For a valid reason, to be stated in a written application, the Administrator of MSHA may grant an extension of a permit for an additional period, not exceeding 6 months. Further extension will be granted only where, after investigation, the Assistant Secretary finds that for reasons beyond the control of the user, it has not been possible to complete the experiment within the period covered by the extended permit.

(f) *Permit label.* With the notification granting a permit, the applicant will receive a photographic copy of a permit label bearing the following:

- (1) Emblem of the Mine Safety and Health Administration.
- (2) Permit number.
- (3) Expiration date of the permit.
- (4) Name of machine.
- (5) Name of the user and mine or tunnel.

The applicant shall attach the photographic copy of the permit label, or replica thereof, to the experimental equipment. If a photograph is used, a clear plastic covering shall be provided for it.

(g) *Withdrawal of permit.* The Assistant Secretary may rescind, for cause, any permit granted under this subpart.

[33 FR 4660, Mar. 19, 1968, as amended at 43 FR 12314, Mar. 24, 1978; 52 FR 17514, May 8, 1987; 60 FR 35693, July 11, 1995; 67 FR 38384, June 4, 2002]

APPENDIX I TO SUBPART D OF PART 18  
LIST OF TABLES

Table No.	Title
1	Portable power cable ampacities—600 volts.
2	Portable cord ampacities—600 volts.
3	Portable power cable ampacities—601 to 5,000 volts.
4	Normal diameter of round cables with tolerances in inches—600 volts.
5	Nominal dimension of flat cables with tolerances in inches—600 volts.
6	Nominal diameter of heavy jacketed cords with tolerances in inches—600 volts.
7	Nominal diameter of three-conductor portable power cables with tolerances in inches—601 to 5,000 volts.
8	Fuse ratings or instantaneous settings of circuit breakers for short-circuit protection of portable cables.
9	Specifications for portable cables longer than 500 feet.

TABLE 1—PORTABLE POWER CABLE AMPACITIES—600 VOLTS (AMPERES PER CONDUCTOR BASED ON 60 °C. COPPER TEMPERATURE—40 °C. AMBIENT)

Conductor size—AWG or MCM	Single conductor	2-conductor, round or flat	3-conductor, round or flat	4-conductor	5-conductor	6-conductor
8 .....	45	40	35	30	25	20
6 .....	60	50	50	40	35	30
4 .....	85	70	65	55	45	35

TABLE 1—PORTABLE CABLE AMPACITIES—600 VOLTS (AMPERES PER CONDUCTOR BASED ON 60 °C. COPPER TEMPERATURE—40 °C. AMBIENT)—Continued

Conductor size—AWG or MCM	Single conductor	2-conductor, round or flat	3-conductor, round or flat	4-conductor	5-conductor	6-conductor
3	95	80	75	65	55	45
2	110	95	90	75	65	55
1	130	110	100	85	75	65
1/0	150	130	120	100	90	80
2/0	175	150	135	115	105	95
3/0	205	175	155	130	120	110
4/0	235	200	180	150	140	130
250	275	220	200	160		
300	305	240	220	175		
350	345	240	235	190		
400	375	280	250	200		
450	400	300	270	215		
500	425	320	290	230		

TABLE 2—PORTABLE CORD AMPACITIES—600 VOLTS (AMPERES PER CONDUCTOR BASED ON 60 °C. COPPER TEMPERATURE—40 °C. AMBIENT)

Conductor size—AWG	1-3 conductor	4-6 conductor	7-9 conductor
14		15	12
12		20	16
10		25	20
			14

TABLE 3—PORTABLE POWER CABLE AMPACITIES—601 TO 5,000 VOLTS (AMPERES PER CONDUCTOR BASED ON 75 °C. COPPER TEMPERATURE—40 °C. AMBIENT)

Conductor size—AWG or MCM	3-conductor types G-GC and SIIC-GC 2,000 volts	3-conductor type SHD-GC 2,001-5,000 volts
6		65
4		85
3		100
2		115
1		130
1/0		145
2/0		170
3/0		195
4/0		220
250		245
300		275
350		305

TABLE 4—NOMINAL DIAMETERS OF ROUND CABLES WITH TOLERANCES IN INCHES—600 VOLTS

Conductor size—AWG or MCM	Single conductor	2-conductor			3-conductor			4-conductor—Types W & G	5-conductor—Types W & G	6-conductor	
		Types W & G twisted	Type PG, 2 power	Type PCG, 3 power, ground	Types W & G	Type PG, 3 power, ground	Type PCG, 3 power, 2 control, ground			Type w	Tolerance
8	0.44	0.81	0.84	0.94	0.91	0.93	1.03	0.99	1.07	1.18	±0.03
6	.51	.93	.93	.98	1.01	1.03	1.18	1.10	1.21	1.31	±.03
4	.57	1.08	1.08	1.10	1.17	1.20	1.29	1.27	1.40	1.52	±.03
3	.63	1.17	1.17	1.20	1.24	1.27	1.31	1.34	1.48	1.61	±.03
2	.66	1.27	1.27	1.29	1.34	1.34	1.39	1.48	1.61	1.75	±.03
1	.74	1.44	1.44	1.44	1.51	1.52	1.52	1.68	1.88	2.05	±.03
1/0	.77	1.52	1.52	1.52	1.65	1.68	1.68	1.79	1.96	2.13	±.04
2/0	.82	1.65	1.65	1.65	1.75	1.79	1.79	1.93	2.13	2.32	±.04
3/0	.87	1.77	1.77	1.77	1.89	1.93	1.93	2.07	2.26	2.49	±.05
4/0	.93	1.92	1.92	1.92	2.04	2.13	2.13	2.26	2.46	2.71	±.05
250	1.03	2.16	2.16	2.16	2.39	2.39	2.39	2.66			±.06
300	1.09	2.32			2.56			2.84			±.06
350	1.15	2.43			2.68			2.98			±.06
400	1.20	2.57			2.82			3.14			±.06
450	1.26	2.67			2.94			3.26			±.06

TABLE 4—NOMINAL DIAMETERS OF ROUND CABLES WITH TOLERANCES IN INCHES—600 VOLTS—Continued

Conductor size—AWG or MCM	Single conductor	2-conductor			3-conductor			4-conductor—Types W & G	5-conductor—Types W & G	6-conductor	
		Types W & G twisted	Type PG, 2 power	Type PCG, 3 power, ground	Types W & G	Type PG, 3 power, ground	Type PCG, 3 power, 2 control, ground			Type w	Tolerance
500 .....	1.31	2.76	.....	.....	3.03	.....	.....	3.40	.....	.....	±.06

TABLE 5—NOMINAL DIMENSIONS OF FLAT CABLES WITH TOLERANCES IN INCHES—600 VOLTS

Conductor size—AWG	2-conductor								3-conductor—Type G			
	Type W				Type G				Major		Minor	
	Major		Minor		Major		Minor		O.D.	Tolerance	O.D.	Tolerance
	O.D.	Tolerance	O.D.	Tolerance	O.D.	Tolerance	O.D.	Tolerance				
8 .....	0.84	±0.04	0.51	±0.03	1.02	±.04	0.56	±.03	1.65	±0.06	0.67	±0.05
6 .....	.93	±.04	.56	±.03	1.15	±.04	.61	±.03	1.85	±.06	.75	±.05
4 .....	1.05	±.04	.61	±.03	1.26	±.04	.68	±.03	1.99	±.06	.77	±.05
3 .....	1.14	±.04	.68	±.03	1.35	±.04	.73	±.06	2.10	±.06	.81	±.05
2 .....	1.24	±.04	.73	±.03	1.55	±.04	.81	±.03	2.43	±.06	.97	±.05
1 .....	1.40	±.04	.81	±.03	1.67	±.04	.93	±.03				
1/0 .....	1.51	±.04	.93	±.03	1.85	±.04	.99	±.03				
2/0 .....	1.63	±.04	.99	±.03	2.00	±.04	1.03	±.03				
3/0 .....	1.77	±.04	1.03	±.03	2.10	±.04	1.10	±.03				
4/0 .....	1.89	±.04	1.10	±.03								

TABLE 6—NOMINAL DIAMETERS OF HEAVY JACKETED CORDS WITH TOLERANCES IN INCHES—600 VOLTS

Conductor size—AWG	2-conductor		3-conductor		4-conductor		5-conductor		6-conductor		7-conductor	
	Diameter	Tolerance	Diameter	Tolerance	Diameter	Tolerance	Diameter	Tolerance	Diameter	Tolerance	Diameter	Tolerance
14 .....	0.64	±0.02	0.67	±0.02	0.71	±0.02	0.78	±0.03	0.83	±0.03	0.89	±0.03
12 .....	.68	±.02	.72	±.03	.76	±.03	.83	±.03	.89	±.03	.98	±.03
10 .....	.73	±.03	.80	±.03	.84	±.03	.90	±.03	1.00	±.03	1.07	±.03

TABLE 7—NOMINAL DIAMETERS OF THREE-CONDUCTOR PORTABLE POWER CABLES WITH TOLERANCES IN INCHES—601 TO 5,000 VOLTS

Conductor size—AWG or MCM	Type G-GC (non-shielded) 2,000 volts		Type SHC-GC (shielded overall) 2,000 volts		Type SHD-GC (individually shielded power conductors) 2,001–3,000 volts		Type SHD-GC (individually shielded power conductors) 3,001–5,000 volts	
	Diameter	Tolerance	Diameter	Tolerance	Diameter	Tolerance	Diameter	Tolerance
6 .....	1.25	+0.10, -0.06	1.39	+0.11, -0.07	1.62	+0.13, -0.08	1.78	+0.14, -0.09
4 .....	1.40	+ .11, - .07	1.55	+ .12, - .08	1.77	+ .14, - .09	1.90	+ .15, - .10
3 .....	1.48	+ .12, - .07	1.62	+ .13, - .08	1.84	+ .15, - .09	1.98	+ .16, - .10
2 .....	1.55	+ .12, - .08	1.71	+ .14, - .09	1.92	+ .15, - .10	2.09	+ .17, - .11
1 .....	1.74	+ .14, - .09	1.89	+ .15, - .09	2.04	+ .16, - .10	2.18	+ .17, - .11
1/0 .....	1.84	+ .15, - .09	2.02	+ .16, - .10	2.18	+ .17, - .11	2.34	+ .19, - .12
2/0 .....	1.99	+ .16, - .10	2.16	+ .17, - .11	2.29	+ .18, - .12	2.46	+ .20, - .12
3/0 .....	2.12	+ .17, - .11	2.30	+ .18, - .11	2.45	+ .20, - .12	2.62	+ .21, - .13
4/0 .....	2.30	+ .18, - .12	2.48	+ .20, - .12	2.62	+ .21, - .13	2.76	+ .22, - .14
250 .....	2.46	+ .20, - .12	2.70	+ .22, - .13	.....	.....	.....	.....
300 .....	2.63	+ .21, - .13	2.84	+ .23, - .14	.....	.....	.....	.....
350 .....	2.75	+ .22, - .14	2.97	+ .24, - .15	.....	.....	.....	.....

TABLE 8—FUSE RATINGS OR INSTANTANEOUS SETTING OF CIRCUIT BREAKERS FOR SHORT-CIRCUIT PROTECTION OF PORTABLE CABLES AND CORDS

Conductor size—AWG or MCM	Ohms/1,000 ft. at 25 °C.	Maximum allowable fuse rating (amperes)	Maximum allowable circuit breaker instantaneous setting (amperes) <sup>1</sup>
14 .....	2.62	20	50
12 .....	1.65	30	75
10 .....	1.04	40	150
8 .....	.654	80	200
6 .....	.410	100	300
4 .....	.259	200	500
3 .....	.205	250	600
2 .....	.162	300	800
1 .....	.129	375	1,000
1/0 .....	.102	500	1,250
2/0 .....	.081	.....	1,500
3/0 .....	.064	.....	2,000
4/0 .....	.051	.....	2,500
250 .....	.043	.....	2,500
300 .....	.036	.....	2,500
350 .....	.031	.....	2,500
400 .....	.027	.....	2,500
450 .....	.024	.....	2,500
500 .....	.022	.....	2,500

<sup>1</sup> Higher circuit-breaker settings may be permitted for special applications when justified.

TABLE 9—SPECIFICATIONS FOR PORTABLE CABLES LONGER THAN 500 FEET<sup>1</sup>

Conductor size—AWG or MCM	Max. allowable length (feet)	Normal ampacity at 60 °C. copper temperature (40 °C. ambient)	Resistance at 60 °C. copper temperature (ohms)
6 .....	550	50	0.512
4 .....	600	70	.353
3 .....	650	80	.302
2 .....	700	95	.258
1 .....	750	110	.220
1/0 .....	800	130	.185
2/0 .....	850	150	.157
3/0 .....	900	175	.130
4/0 .....	1,000	200	.116
250 .....	1,000	220	.098
300 .....	1,000	240	.082
350 .....	1,000	260	.070
400 .....	1,000	280	.061
450 .....	1,000	300	.054
500 .....	1,000	320	.050

<sup>1</sup> Fuses shall not be used for short-circuit protection of these cables. Circuit breakers shall be used with the instantaneous trip settings not to exceed the values given in Table 8.

[33 FR 4660, Mar. 19, 1968; 33 FR 6345, Apr. 26, 1968, as amended at 42 FR 8373, Feb. 10, 1977]

APPENDIX II TO SUBPART D OF PART 18  
LIST OF FIGURES

Figure No.	Title
1	Typical layout drawing of a machine.
2	Sample bill of material (to accompany layout drawing shown on figure 1)
3	Material to be included with the operating instructions on or with the wiring diagram submitted to each customer.
4	Sample factory inspection form.
5	Typical plane joint.
6	Typical combination joint.
7	Typical threaded joint.
8	Typical threaded straight stuffing box and packing gland lead entrance with provision for hose conduit.
9	Typical slip-fit straight-type and angle-type stuffing box and packing gland lead entrance.
10	Typical slip-fit angle-type stuffing box and packing gland lead entrance and typical plug for spare lead entrance hole.

Figure 1  
TYPICAL LAYOUT DRAWING OF A MACHINE

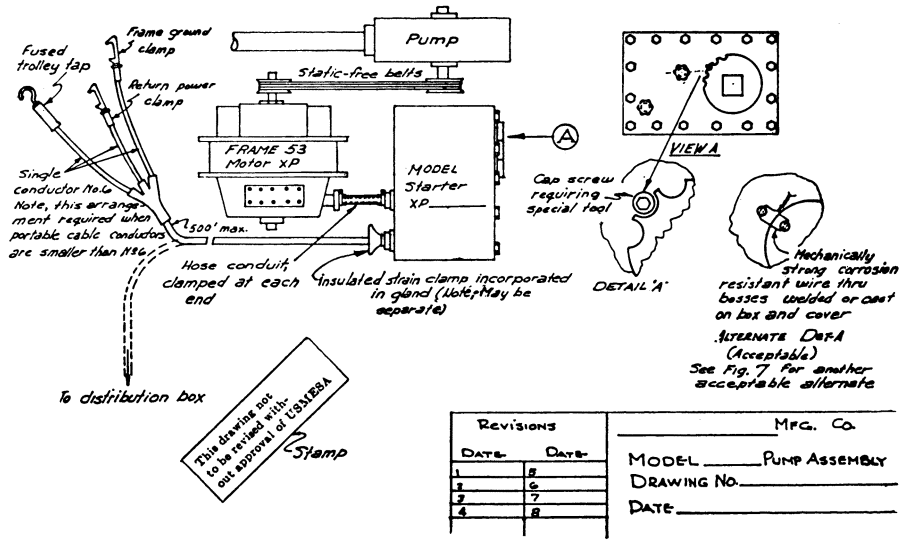


FIGURE 2—SAMPLE BILL OF MATERIAL

B. of M. No. \_\_\_\_\_  
 Date \_\_\_\_\_  
 Revision \_\_\_\_\_  
 Date \_\_\_\_\_  
 1. \_\_\_\_\_  
 2. \_\_\_\_\_  
 3. \_\_\_\_\_  
 4. \_\_\_\_\_  
 5. \_\_\_\_\_

Bill of Material (Electrical)

Model: \_\_\_\_\_ (Manufacturing Company)  
 \_\_\_\_\_ (Unit Name)  
 Approval 2G— \_\_\_\_\_  
 Motor: \_\_\_\_\_ (Manufacturing Company)  
 Frame \_\_\_\_\_  
 \_\_\_\_\_ Hp., \_\_\_\_\_ Volts, \_\_\_\_\_ Ph.,  
 \_\_\_\_\_ Cy., \_\_\_\_\_ R.P.M.  
 X/P \_\_\_\_\_ (Date)  
 \_\_\_\_\_ (Date) Extension.  
 Starter: \_\_\_\_\_ (Manufacturing Company)  
 Model \_\_\_\_\_  
 \_\_\_\_\_ Hp., \_\_\_\_\_ Volts.  
 X/P \_\_\_\_\_ (Date)  
 \_\_\_\_\_ (Date) Extension.  
 Cable—Motor to Starter: \_\_\_\_\_

Cond. No. \_\_\_\_\_, \_\_\_\_\_"  
 O.D., \_\_\_\_\_' Long  
 Hose—Motor to Starter Cable:  
 \_\_\_\_\_" I.D., \_\_\_\_\_" O.D., \_\_\_\_\_' Long  
 Portable (Trailing) Cable—  
 Type: \_\_\_\_\_  
 Cond. No. \_\_\_\_\_, \_\_\_\_\_"  
 O.D., \_\_\_\_\_' Long  
 Hose—for Portable Cable:  
 \_\_\_\_\_" I.D., \_\_\_\_\_" O.D., \_\_\_\_\_' Long  
 Hose Clamps—  
 2 for Motor-Starter Hose conduit \_\_\_\_\_" D  
 1 for Portable Cable Hose conduit \_\_\_\_\_" D\*  
 \*Only when short length of hose is used. Trolley Tap—  
 \_\_\_\_\_  
 (Manufacturing Company)  
 Model \_\_\_\_\_ with \_\_\_\_\_-ampere fuse.  
 Rail Clamps, 2.  
 1 Ground Clamp, Cat. No. \_\_\_\_\_  
 \_\_\_\_\_  
 (Manufacturing Company)  
 1 Return Power Conductor, Cat. No. \_\_\_\_\_  
 \_\_\_\_\_  
 (Manufacturing Company)  
 or—as Optional  
 Plug on outby end of potable cable for insertion into receptacle on distribution box or equivalent with short-circuit protective device set at \_\_\_\_\_ amperes.  
 Static-free Belt  
 Model \_\_\_\_\_  
 Style \_\_\_\_\_  
 Catalog No. \_\_\_\_\_,  
 \_\_\_\_\_  
 (Manufacturing Company)  
 Guard for Belt—  
 Material \_\_\_\_\_  
 Overall Dimensions \_\_\_\_\_" Long × \_\_\_\_\_"  
 Wide × \_\_\_\_\_" High  
 NOTE: The foregoing is intended as a guide. Additional electrical components used shall be completely identified.

FIGURE 3—MATERIAL TO BE INCLUDED WITH THE OPERATING INSTRUCTIONS—ON OR WITH THE WIRING DIAGRAM SUBMITTED TO EACH CUSTOMER

(SOMETIMES REFERRED TO AS "CAUTION STATEMENT")

CAUTION

- 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. 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 on 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.
  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. Not more than five temporary splices are permitted in a portable cable regardless of length. Connections and wiring to the outby end of the cable shall be in accordance with recognized standards of safety.

FIGURE 4—SAMPLE FACTORY INSPECTION FORM

Date \_\_\_\_\_

Inspector \_\_\_\_\_

MACHINE

Designation: \_\_\_\_\_

Type: \_\_\_\_\_ Serial No. \_\_\_\_\_

MOTOR

Manufacturer: \_\_\_\_\_

Serial No.: \_\_\_\_\_ Type: \_\_\_\_\_

Frame: \_\_\_\_\_

Hp. \_\_\_\_\_ F.L. Speed: \_\_\_\_\_ Volts: \_\_\_\_\_ Amps. \_\_\_\_\_

Winding: \_\_\_\_\_ X/P No. \_\_\_\_\_ (or parts list designation).

STARTER

Manufacturer: \_\_\_\_\_

Serial No. \_\_\_\_\_ Type: \_\_\_\_\_

Hp. \_\_\_\_\_ Volts: \_\_\_\_\_ X/P No. \_\_\_\_\_ (or parts list designation).

Short-circuit protection \_\_\_\_\_ amps.

Overload-current protection \_\_\_\_\_ amps.

PORTABLE CABLE

Manufacturer: \_\_\_\_\_

Type: \_\_\_\_\_ Conductors: \_\_\_\_\_

Length: \_\_\_\_\_ O.D. \_\_\_\_\_ MSHA No. \_\_\_\_\_

Is all wiring around machine adequately protected from mechanical damage? \_\_\_\_\_

By hose conduit \_\_\_\_\_, Troughs \_\_\_\_\_

Metal tubing \_\_\_\_\_, Other \_\_\_\_\_

By removal of all sharp corners or edges? \_\_\_\_\_

Is wiring separated from hydraulic components? \_\_\_\_\_

Is an adequate insulated strain clamp provided for the portable cable? \_\_\_\_\_

Are all packing glands properly packed so that 1/8-inch 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 an 0.005-inch feeler gage cannot be inserted? \_\_\_\_\_

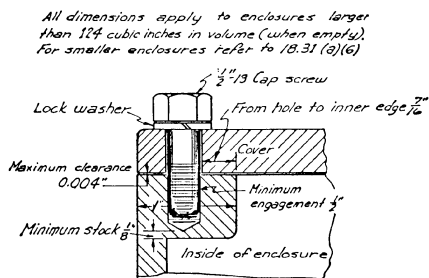
Are all threaded covers secured? \_\_\_\_\_

How? \_\_\_\_\_

Are all electrical connections secure \_\_\_\_\_ and properly insulated where necessary? \_\_\_\_\_

NOTE: Add appropriate material for each explosion-proof enclosure when more than a motor and starter are on a machine.

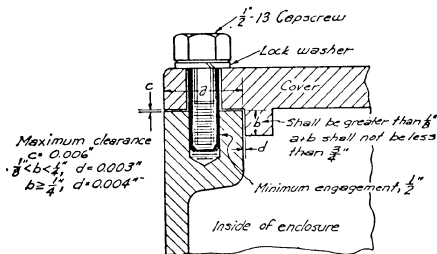




TYPICAL PLANE JOINT

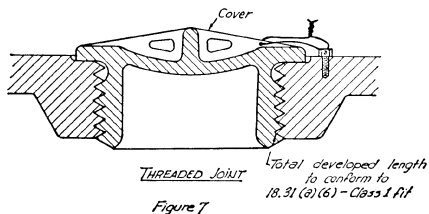
Figure 5

All dimensions apply to enclosures larger than 124 cubic inches in volume (when empty). For smaller enclosures refer to 18.31 (a) (6)



TYPICAL COMBINATION JOINT

Figure 6



TYPICAL PLUG FOR SPARE LEAD ENTRANCE HOLE

Figure 7

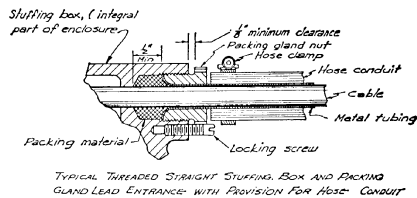
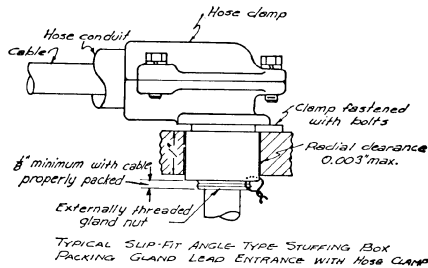
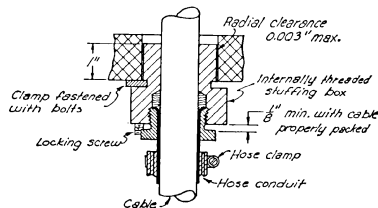


Figure 8

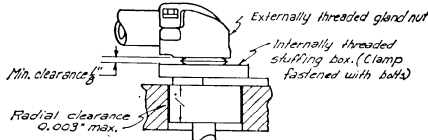


TYPICAL SLIP-FIT ANGLE TYPE STUFFING BOX PACKING GLAND LEAD ENTRANCE WITH HOSE CLAMP



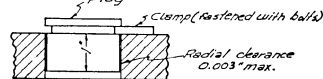
TYPICAL SLIP-FIT STRAIGHT TYPE STUFFING BOX AND PACKING GLAND LEAD ENTRANCE

Figure 9



TYPICAL PLUG FOR SPARE LEAD ENTRANCE HOLE

Plugs shall be secured by spot welding or brazing, weld may be on plug, clamp, or fastening bolt



TYPICAL PLUG FOR SPARE LEAD ENTRANCE HOLE

Figure 10

[33 FR 4660, Mar. 19, 1968, as amended at 42 FR 8373, Feb. 10, 1977; 42 FR 25855, May 20, 1977]

**Subpart E—Field Approval of Electrically Operated Mining Equipment**

SOURCE: 36 FR 7007, Apr. 13, 1971, unless otherwise noted.

**§ 18.90 Purpose.**

The regulations of this subpart E set forth the procedures and requirements