

# OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

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## FINAL STATEMENT OF REASONS

Title 8, Chapter 4, Subchapter 7,  
Article 37 - Purpose, Definitions and Standards,  
Article 41 - Prime Movers and Machinery,  
Article 43 - Shafting, Collars, Clutches,  
Cut-Off Couplings and Clutch Pulleys,  
Article 44 - Pulleys,  
Article 45 - Belt and Pulley Drives,  
Article 46 - Gears, Friction Drives, Sprockets, and Chains,  
Article 47 - Power Disconnecting Devices,  
of the General Industry Safety Orders

## ADMINISTRATIVE REQUIREMENT ADDRESSED BY PROPOSED ACTION

Government Code Section 11349.7 requires all State agencies to review their regulations which were in existence prior to July 1, 1980, and to complete any rulemaking action necessary to correct any deficiencies or repeal any unnecessary regulations within six (6) months of completion of this review. In response to this legislative mandate, the Standards Board has conducted a review of these regulations by applying the specifically required review criteria of authority, reference, clarity, necessity, consistency and nonduplication to each regulation.

## SPECIFIC PURPOSE AND FACTUAL BASIS OF PROPOSED ACTION

The purpose of this rulemaking action is to correct deficiencies and repeal unnecessary regulations which were noted in the review of these regulations. A number of editorial revisions have been adopted. Proper authority and reference citations have been added where needed. The factual basis for the other revisions is as follows:

### ARTICLE 37. PURPOSE, DEFINITIONS AND STANDARDS

#### Section 3940. Purpose.

This section sets forth the scope and applicability of the regulations contained in Article 37 and also specifies areas where the regulations do not apply. The term "shall regulate" has been repealed and in its place the phrase, "apply to", was adopted as this section states the purpose of the regulations. Also repealed was an unnecessary statement which paraphrases the Labor Code requirement charging employers to comply with these regulations.

#### Section 3941. Definitions.

This section contains definitions required to clarify the intent of the regulations contained in Article 37. The definitions for "Belt Shifter", "Enclosed", "Guarded", "Machine" and "Prime Mover" have been revised to remove redundant or unnecessary language. The definitions for "Exposed to Contact", "Power Transmission Equipment" and "Process Machine" have been repealed as the definitions are

self-evident by the word or phrase. Definitions for "Flywheel", "Guarded by Location" and "Machine Parts" have been editorially revised for clarity. Because the regulations require the guarding of hazards, a definition for "Nip-point" has been developed to describe the potential hazard of the inrunning sides of rotating parts in lieu of describing the type of guarding to be installed. The remainder of the definitions remains unchanged.

#### Section 3942. Type of Guarding Required.

Subsection (a) delineates the design and specific types of materials of which guards are to be constructed. Also, the requirement stated that the guards were to be adequately secured in place with specified minimum fastener spacing. This requirement has been repealed and replaced by a performance regulation to allow the employer to use available alternatives. A statement has been adopted to require that the guard surfaces be free of hazardous projections which could cause injury to the employee.

#### Section 3943. Guard Standards.

Subsection (a) required that disk guards be constructed of metal no less than No. 22 U.S.S. gage, or other material which will give equivalent protection. If securely fastened by bolts, lock nuts and washers are to be used. As the result of public comment, this subsection has been repealed to eliminate the duplication of the requirements in Section 3942. The remainder of the Section has been reindexed to reflect the repeal of Subsection (a) and the subject of disk guards transferred to Section 3995 as a "Note".

Existing subsection (b) [new (a)] requires that shield guards consist of a substantial frame, either filled or covered with wire mesh, expanded, perforated or solid sheet metal, plywood, plastic or equivalent. This requirement was specific in that if the shield guard was constructed of wire mesh or expanded metal, then some means would be provided to reinforce the face to prevent flexing. The specifications contained in this subsection have been repealed and the regulation made into a performance standard.

Existing subsection (c) [new (b)] requires that trough or U-guards be constructed of materials specified in Table G-1, that the edges will be smooth and reinforced and references Figure G-6. This standard has been revised to be a performance standard by requiring that guards be "installed in accordance with the guidelines illustrated in Figures G-5 and G-6."

Existing subsection (d) [new (c)] requires that enclosure guards be constructed of materials specified in Table G-1, except guard rails, and these guards be installed to completely enclose the power transmission equipment or other moving parts. The specific requirements have been repealed to reflect the language change to Sections 3942 and 3943 and to allow employers alternative methods for guarding.

Existing subsection (e) [new (d)] requires that belt and pulley nip-point guards be constructed of materials specified in Table G-1, and that the guard protect the employee to a point at least 6 inches plus the radius of the pulley from the center of the shaft. The specification language has been repealed and this made into a performance requirement and the informational statement referencing Section 4070(a) exceptions (2) and (3) has been repealed as it is unnecessary.

Existing subsection (f) [new (e)] requires that the guards on horizontal overhead belts be no more than 25% wider than the belt being protected, to a maximum clearance of 6 inches on each side. Unnecessary phrases have been repealed. The written term "one quarter" has been replaced by the accepted term "25%".

Existing subsection (g) [new (f)] requires that horizontal overhead rope and chain drive guards will not be less than 6 inches wider than the drive on each side. Also required is that the width of multiple drives shall be the distance from the outside of the first to the outside of the last rope or chain in a group accommodated by the pulley. The statement referencing the width of the multiple drive and the type of filler material used to close the gaps between the pulleys has been repealed as these requirements are contained elsewhere in Article 37. Also adopted is a requirement that when employees pass under overhead rope and chain drives, a trough or other effective means of sufficient strength to carry the weight of the broken chain shall be provided to prevent the chain from falling and injuring employees below.

#### Section 3944. Guard Clearances.

Subsection (a) requires that when a guard or enclosure is within 2 inches of moving parts, the guard openings will be of such size to preclude the passage of any object 1/2-inch in diameter. Also, a note is provided within the regulation that an opening 1/2-inch square or 1/2-inch in diameter will not preclude the passage of an object 1/2-inch in diameter. As the result of public comment, no revisions have been made to the 1/2-inch requirement. However, the Note has been repealed as being unnecessary.

Table G-1 is a tabulation of materials used for guarding with specific dimensioned openings and distances from moving parts. Column C has been revised to include the term "Gauge" for clarification of the dimension heading. Following "Sheet metal Under 4" in column B, the number 22, which is a gauge reference, has been moved to column C. Also, in column B opposite "Wood or metal strip not crossed Under 4" and "4-15" the term "width" has been repealed, meaning the maximum opening size will be 1/2- and 1-inch rather than 1/2 and the full width of the material used.

Figures G-1 and G-2 show patterns for woven wire, expanded metal and other wood or metal shapes used to fabricate guards for machines. Figure G-2 includes suggested guarding applications. Figure G-1 contains "B" dimensions and Figure G-2 contains "A" dimensions which refer to Table G-1. However, there was no reference information on

Figures G-1 or G-2 indicating that the reader should look on Table G-1 for the necessary information. Reference notations have been adopted indicating that the necessary dimension information will be found in Table G-1.

Figure G-7 shows an overhead belt and pulley guard with a 36-inch dimension. For clarity, the support dimension has been referenced as "36-inch support spacing (typical)". Also a legend has been adopted to denote that the outside line of the drawing depicts the belt guard.

#### Section 3945. Openings for Oiling.

Subsection (a) requires the employer to provide hinged or sliding covers within the guards to allow the lubrication of machinery. For clarity, the words "oil or greasing" have been replaced by the word "lubrication" and the word "done" has been replaced by "performed".

### ARTICLE 41. Prime Movers and Machinery.

#### Section 3995. Flywheels.

Subsection (a) is entitled "Prime Mover Flywheels". This title has been repealed as it is merely repetitive of the title of the section. Subsection (a)(1) has been relettered as subsection (a) to reflect the repeal of the "lettered" title.

Existing subsection (a)(1) requires that flywheels less than 7 feet above the floor or working level be guarded. This subsection has been revised to include the term "hazardous" to require flywheels having spokes or "hazardous" projections be guarded. A Note has been adopted to allow the guarding of machine flywheel spokes with a circular disk guard. This subject was addressed in subsection 3943(a), which has been repealed.

Subsection (b) was entitled "Machine Flywheels". This subsection required that machine flywheels having spokes or projections, any part of which is less than 7 feet above the floor or working level, be guarded. This subsection also addressed the subject of disk guards. Subsection (b) was repealed as it duplicates what is contained in subsection (a).

#### Section 3996. Cranks and Connecting Rods.

The title and text of this section has been revised by adopting verbatim Federal wording of 29 CFR 1910.219(b)(2) to clarify that the requirement addresses cranks and connecting rods.

#### Section 3997. Tail Rods, Extension Piston Rods or Tail Crossheads.

The title has been editorially corrected to make "Crossheads" one word.

## Section 3998. Belt Shifters.

The requirements for Belt Shifters have been transferred from Section 4085 to place these requirements in a more appropriate location.

## Section 3999. Conveyors.

Subsection (b) requires that all belt conveyor head pulleys, tail pulleys, single tension pulleys and dip take-up pulleys be guarded in a manner which prevents an employee from reaching behind and into the nip-point of the belt and pulley. This section has been revised to include similar hazards for sprockets which were regulated in subsection (c) which has been deleted. A Note has been adopted to allow the nonpowered support rollers on belt conveyors to be left unguarded unless a potential hazard to the employee exists.

Subsection (c) requires all chain conveyor head drums or sprockets, tail drums or sprockets, single tension drums or sprockets and dip take-up drums or sprockets to be guarded. This section has been repealed to reflect the adoption of these requirements into subsection (b) to eliminate duplication of requirements. A new subsection (c) has been adopted to require the installation of crossovers where necessary to provide employee access across hazardous conveyors. A provision has been adopted to require that a minimum 6-foot 6-inch headroom clearance consistent with access requirements contained in Section 3273 be provided where employees must pass under conveyors to preclude possible injury caused by employee contact with moving parts.

Subsection (d) required that portable inclined conveyors have the head and tail pulleys, sprockets and power transmission equipment guarded. This section has been repealed to eliminate duplication of requirements as amended subsection (b) will address these requirements.

Subsection (e) required crossovers for employees to pass over exposed conveyors. This section has been repealed because it contains unnecessary words and duplicates the access requirements contained in Section 3270. The conveyor crossover requirements have been transferred to new subsection (c).

Subsection (d) [old (f)] requires that conveyors be equipped with guards to prevent material from falling from the conveyor where passing over areas occupied or used by employees. The phrase "prevent the material transported from falling" has been adopted to clarify the intent of this requirement.

Subsection (e) [old (g)] requires that a method or means be provided to prevent broken carrier chains from falling on employees working below. A specific gender reference has been repealed.

Subsection (f) [old (h)] prohibits employees from riding power driven chain, belt or bucket conveyors. The phrase "not be permitted to ride or walk" has been adopted for specificity and clarity.

Section 4000. Process Machine Power Control.

This section has been editorally revised as a result of the Federal review process. The Exception contained within the text of subsection (b) has been relocated as a separate paragraph directly below (b). This change results in the Exception standing alone so that its existence is immediately apparent.

ARTICLE 43. Shafting, Collars, Clutches, Cut-off Couplings and Clutch Pulleys.

Section 4050. Shafting, Collars, Clutches and Couplings.

The title has been revised to reflect the merging of collars, clutches and couplings into the shafting section as the requirements are identical.

Subsection (a) requires that exposed parts of line or countershafting 7 feet or less from floor or working level shall be guarded. This section has been revised to reflect the merging of collars, clutches, cut-off couplings and clutch pulleys from Section 4052 into Section 4050 as the hazards are identical.

Subsection (c)(3) requires that transmission shafting under benches which presents a hazard be guarded on the exposed sides with a rigid shield. The phrases in the Exception "deemed to be", "with these standards" and "providing, however, that when" have been repealed as being unnecessary.

Section 4052. Collars, Couplings, Clutches, Cut-off Couplings and Clutch Pulleys.

This section referenced Section 4050 for requirements for the guarding of collars and couplings. This subsection has been repealed and the requirements relocated into Section 4050.

Subsection (b) addresses clutches, cut-off couplings and clutch pulleys. This subsection has been repealed and the requirements relocated into Section 4050.

ARTICLE 44. Pulleys.

Section 4060. Location of Pulleys on Line Shaft and Countershaft.

Subsection (a) specifies that the distance from the nearest fixed pulley shall not exceed the width of the belt. The phrase "does not exceed" has been replaced by "is equal or less than" for clarity and the unnecessary language "on the side where insufficient clearance exists" has been repealed.

Subsection (b) requires that overhanging flat pulleys on line shafts be provided with a stop to prevent the belt from running off the pulley. The unnecessary words "Belts on" have been repealed.

Subsection (c) requires that belt perches be provided to prevent idle belts from becoming engaged with shafts which could inadvertently start machinery. The unenforceable sentence "Perches should be substantial and designed for safe shifting of belts." has been repealed.

#### ARTICLE 45. Belt and Pulley Drives.

##### Section 4070. Guarding.

Subsection (a) requires that any part of flat, crowned, or flanged pulleys 7 feet or less above the floor or working level be guarded. This subsection has been revised by adding the phrase "all moving parts of belt and pulley drives located" and repealing the specific reference to flat, crowned, or flanged pulleys as this reference is unnecessary. Any pulley, regardless of type, 7 feet or less above the floor or working level must be guarded.

The Note to subsection (a) has been revised to remove the unnecessary phrase "ropes, or chains of various center to center dimensions between the shafts", and the reference to the nonexistent Table G-2. A new statement has been added to reference Table G-1 and Figure G-2.

Exception (2) addresses flat belts 2 inches in width or less, allowing belts of this size to be unguarded. This exception has been replaced with Federal regulation 29 CFR 1910.219(a)(1). The statement regarding metallic belt fasteners or lacings having to be guarded has been transferred to a new subsection (h). Also included in Exception (2) is the term "hazardous" to delineate nip-point conditions which are not allowed by this exception.

Subsection (b) required that flat step-cone pulley drives which are located 7 feet or less above the floor or working level have all parts guarded. This subsection has been repealed as the revision to subsection (a) addresses the hazards of this type of belt drive.

Subsection (c) required that all moving parts of V-belt and pulley drives 7 feet or less above the floor are to be guarded. This section has been repealed as the revision to subsection (a) addresses the hazards of this type of belt drive. Exception (1) exempts the fan belt drives on motor vehicles from requirements of subsection (c). This exemption has been revised to remove a specific gender reference. Exceptions (c)(2) and (3) have been renumbered to be included within the exception list under (a).

Subsection (g) required that guardrails and a substantial passageway which is guarded on sides and top be constructed where employees are able to pass between the upper and lower runs of belts. This section has been repealed as its requirements are contained in proposed revised subsection (a).

Subsection (j) redesignated as (g), suggested that belt dressing be applied only where belts or rope leave the pulley. This subsection has been made mandatory so that the dressing shall not be applied except at a safe distance from the nip-point.

A new subsection (c) has been adopted to address the correct method for clinching and maintaining metallic belt fasteners. This subsection was part of existing Exception (a)(2) and has been made a mandatory requirement.

Section 4071. Belt Tighteners.

This section requires that counter-balanced belt tighteners be constructed of substantial material. The unnecessary phrase "all parts thereof" has been repealed.

Section 4072. Variable Speed Drives.

This section required that all moving parts of belt-type variable speed drives 7 feet or less above the floor or working level be guarded. This section has been repealed as its concerns are met through revised section 4070(a).

ARTICLE 46. Gears, Friction Drives, Sprockets and Chains.

Section 4075. Gears and Sprockets.

This section contains requirements for the guarding of gears and sprockets, which include: (a) full enclosure; (b) a shield guard which surrounds the gears and sprockets at least 7 feet high; and (c) that gears and sprockets in inaccessible locations need not be guarded provided the machinery is equipped with extension lubrication fittings. This section has been revised to include the similar hazards of sprocket chain drives which were contained in repealed Section 4077.

Subsection (d) requires that gears and sprockets located within the frame or housing of machines and which cannot be contacted need not be guarded providing the intervening, revolving or reciprocating parts are guarded as required. This section has been repealed as it merely repeats requirements contained in other sections of Article 37.

A new subsection (d) having requirements which were contained in Section 4077(c) has been adopted to address the guarding of silent chain drives.

Section 4077. Sprocket Chains.

This section required that chains of sprocket and chain drives 7 feet or less above the floor or working level shall be guarded.

Subsection (a) has been repealed to reflect the proposed inclusion of this requirement in Section 4075.

Subsection (b) required that where workmen (sic) pass under chain drives, a shallow trough or other effective means of sufficient strength to carry the weight of the broken chain be provided. This requirement has been transferred to Section 4075(c) with a reference to Sections 3943(c) and (f) to eliminate duplication and a revision to remove a specific gender reference.

Subsection (c) required that guards on overhead silent chain drives be not less than 1/4-inch from the nearest moving chain part, except that on drives of over 20-inch centers, the distance shall not be less than 1/2-inch. This section has been transferred into Section 4075 as subsection (d) to reflect the consolidation of requirements for the guarding of gears, sprockets and sprocket chains.

ARTICLE 47. Power Disconnecting Devices.

Section 4085. Belt Shifters and Other Disconnecting Devices.

Subsection (a) required that tight and loose pulleys be equipped with permanent belt shifters accessible from the worker's position and (b) required that manually operated power disconnecting devices be designed, constructed and installed so they will remain in a neutral position until intentionally actuated. This section has been transfer into Article 41 - Prime Movers and Machinery, as Section 3998 as the subject matter of this section is more appropriately addressed in Article 41.

TECHNICAL DOCUMENTS RELIED UPON

None.

ORAL COMMENTS

Mr. Cash Hooper, Safety Officer Department of Forestry

See summary and response in written comments section.

Mr. William Jackson, Associated General Contractors of California

Mr. Jackson is concerned that the reduction of the 1/2 inch dimension contained in 3944 (a) from 1/2" to 3/8" would require employers to place finer mesh than presently exists on guards. He stated that a 3/8" grid will prevent the passage of the 1/2" diameter object but it may not necessarily preclude the passage of a 3/8" diameter object. He was of the opinion that as the section is presently written, the intent of table G-1 is met.

Response

As stated at the Public Hearing by Mr. John Bobis, Principal Safety Engineer, the intent of the revision is to be consistent with Table G-1. Mr. Jackson does present a valid point and with this in consideration, the regulation will be retained as originally written, stating the opening will preclude the passage of an 1/2" diameter object. It should also be noted that the proposed reduction would have resulted in the reduction of the volume of air passing through the radiator of vehicles, therefore, interfering with the cooling of the engines.

Section 3945(a)

Mr. William Jackson, Associated General Contractors of California

Mr. Jackson stated that it appeared to him that the proposed change for section 3945 (a), "Opening for Oiling", would be in conflict with Section 3942 (b), "Types of Guarding Required", which gives the employer the option to provide guards with hinged to removeable sections for changing belts, making adjustments or the admission of lubricants. It would appear that as written Section 3945(a) would require hinged or sliding covers where lubricant is to be provided.

Response

Article 6 requires that hazardous moving parts of machinery and equipment be guarded. The intent of section 3945(a) is that if lubrication of parts must be performed while the machinery is in operation, to preclude the removal of the guard, openings with hinged or sliding covers will be provided. (Emphasis added.) For clarity, and to respond to Mr. Jackson's concerns, the regulation has been revised to read "Where lubrication must be performed while the machine is operating, openings with hinged or sliding covers shall be provided".

Section 3995 (a)(1)

Mr. John Engwall, Communication Workers of America.

Mr. Engwall was of the opinion that adding the word "hazardous" is superflous as all parts of a flywheel are movable and therefore "hazardous".

Response

As Mr. Bobis explained, there are some flywheels which do not have spokes or projecting parts or recesses. These flywheels are completely smooth, therefore, are not considered dangerous, that is there are no parts on which articles of clothing or body extremities could be "caught". Therefore, the proposed revision is appropriate.

Section 3999 (b)

Mr. William Jackson, Associated General Contractors of California

Mr. Jackson suggested the "Note" concerning rollers which are not hazardous and that need not be guarded is unnecessary as employers should guard against all injuries, not just serious injuries.

Response

The "Note" was proposed by the advisory committee to address certain long conveyors, such as those used in processing plants, having support rollers which are not powered. The only time this type of roller would be hazardous is when the conveyor is loaded. Also if an employee's fingers were to be placed between the roller and belt, the likelihood of incurring more than a pinched or scraped finger is remote. No additional revisions are necessary.

Mr. Dave Smith, Member, Occupational Safety and Health Standards Board

Mr. Smith suggested rewording the Note in Section 3999(a) to use the term "powered rollers".

Response

Section 4002 (a) states that all nip points must be guarded. Therefore the requirement that powered rollers be guarded already exists within the regulations. Therefore adding the term "powered rollers" to Section 3999(a) is not necessary.

Mr. Edward Maher, Member, Occupational Safety and Health Standards Board

Mr. Maher stated that "although a roller may not be powered, if there is a heavy object on the belt then the nip point can be severe". He concurred that where the rollers are guarded by location, it is not necessary to guard them by mechanical means. It is his belief that the term guarded by location is an acceptable term and is used in other sections of the Safety Orders. Mr. Maher also stated that the word "serious" bothered him as there is a requirement for reporting "serious injuries". He asked if this language meant the employer only had to report a serious injury if it met the statutory definition of "serious".

Response

Mr. Bobis explained that the advisory committee tried to tie this section in with the Labor Code. The Labor Code defines "serious injury" as meaning more than a band aid situation, that is, an injury that requires at least 24 hours hospitalization for other than observation. Therefore serious in this instance means more than an abrasion or band aid case.

Subsection 3999 (c)

Mr. William Jackson, A. G. C.

Mr. Jackson stated he did not understand the phrase "where necessary to pass over hazardous conveyors".

Response

This section was written to address "extremely large conveyors" which cannot be easily stepped across.

Section 3999 (g)

Mr. William Jackson, Associated General Contractors of California.

Mr. Jackson stated that section 3999 (e) appears to duplicate section 3943 (g) which requires guarding of overhead ropes and chain drives.

## Response

Although the wording in section 3943 (g) and proposed section 3999 (e) is similar, 3943 (g) relates to providing a trough or guard to prevent a broken conveyor drive chain or rope from falling on employees working below. New section 3999(e) relates to the guarding of the return strands for chain conveyors. The two sections address two separate and different parts of the conveyor system. Therefore, the wording is necessary in both regulations.

## Mr. William Jackson, Associated General Contractors of California 4075 (c)

Mr. Jackson was of the opinion that section 4075 (c), which refers to employees passing under chain drives, would be more appropriate if referenced to section 3943 (g) [new (f)] which specifically addresses the guarding of a chain drive. He wished to know if the intent was to guard the moving parts, or, protect the employees from broken chains.

## Response

It is the intent of 4075 to ensure that the moving parts of a chain drive are guarded. Section 3943 (d) and (e) require provisions be made to protect employees working below the conveyor from being struck by falling material. Therefore, Section 4075 (c) was amended to include references to both Section 3943 (c) and (f).

## WRITTEN COMMENTS

Mr. Cash Hooper, Department of Forestry, by hand carried letter of December 6, 1984, presented at the December 12, 1984 Public Hearing.

## Section 3941 Definitions

### Nip-point

Mr. Hooper is of the opinion that the definition of nip-point, as proposed, includes an erroneous statement, "and the stationary part". It is his opinion that nip-points occur only where there is a contact between the in-moving power drive members; i.e., belts with pulleys, meshing gears etc, and not stationary parts.

## Response

An in-running pulley, gear, etc., if located close to a stationary object or, temporarily stacked material, will form a condition in which an extremity could be "pinched" or "nipped" by the machine part. Therefore, it is necessary to include in the definition the reference to the stationary part. However, the definition has been revised to clearly define what constitutes a nip-point.

Section 3942 Type of Guarding Required; 3943 Guard Standards, 3944 Guard Clearances.

Mr. Hooper is of the opinion that Sections 3942, 3943, 3944 should be combined into Section 3942 and be entitled "Guard Standards" by eliminating the introductory paragraphs to 3942, 3943, 3944, and to reletter subsections to fit sequentially within the new subsection.

Response

Mr. Hooper's concerns have merit and would result in the removal of an apparent duplication of requirements. Consequently, the proposed revision to Section 3943 (a) was removed. The remaining subsections were relettered accordingly. The purpose for retaining the "type of guarding required" and "guards standards" separately is that Section 3942 is a general requirement stating that guards shall be provided and addressing a unique condition to eliminate the need for removing guards for adjustments, changing of belts, etc. Whereas, Section 3943 is specific in the types of guard shapes and areas where they are to be used.

Sections 3945 Openings for Oiling.

Mr. Hooper is of the opinion that the title of this section should be revised to read either "Guard Openings for Oiling" or "Openings in Guards for Oiling".

Response

Section 3940, Purpose, states "These orders apply to the guarding of power transmission equipment....". The intent of these orders is to address the guarding of machinery. The "purpose" statement already delineates that the regulations relate to guards. Therefore, the title is appropriate as written.

Section 4070 Guarding

Mr. Hooper is of the opinion that the term "required" should be added after the word "guarding" in the title.

Response

Again, Section 3940, entitled "Purpose", states "These orders apply to the guarding of power transmission equipment", and therefore no additional wording is necessary.

Subsection 4070 (a)(2)

Mr. Hooper is of the opinion that the beginning sentence should be revised to read "The following belts when operating 250 feet per minute ...".

## Response

Mr. Hooper's suggestion has merit and the suggested revision will clearly define the intent of this exception. Therefore the sentence will read, in part: "The following belts when operating at 250 feet per minute or less: ...".

Mr. W. C. Jackson, Chief Engineer, Safety, Product Integrity, International Hough Division, Dresser Industries Inc. by letter of November 21, 1984.

## Section 3944. Guard Clearance

Mr. Jackson opposes the revision requiring that guards less than 2 inches from moving parts having openings be required to preclude the passage of an object 3/8" in diameter. The reason being that the effect of this revision would result in a denser guard and a minimum reduction of 25% for the air flow through the engine cooling fan. Any restriction to this air flow could conceivably require replacement of major components such as the radiator and the retrofitting of older machines which would result in additional expenses for machine owners. Also, the disruption of air flow would have a profound effect on the noise generated by the fan.

## Response

See response to oral comment of Mr. William Jackson of the Associated General Contractors.

Mr. L. A. Jennings, Worldwide Product Compliance, John Deere Dubuque Works, by letter of November 2, 1984.

Mr. Jennings is of the opinion that self-propelled off-road work machines as defined by SAE J1116, June 1981, and motor vehicles used for transporting employees or materials should be exempt from the requirement of Group 6.

## Response

Group 6, in which Section 3940 is contained, addresses the guarding of machine parts. Group 8 addresses point of operation guarding. It is the intent of those regulations contained in Group 6 to ensure that where employees are exposed to the hazards of moving parts, which include fan belts, gears, nip points, etc, that guarding is provided. If no employee exposure exists, then no guarding is necessary. Section 4070 requires V-belt and pulley drives to be fully enclosed. The exclusion for vehicles used for transportation of employees takes into account that when employees are being transported, the transported employees and driver will be in a location remote from the fan belt and the accompanying pulley nip point. However, if the fan belt does create a hazard to employees, then the requirements of Group 6 and of Section 4070 apply. Therefore, the suggested revision is rejected.

Mr. Richard Spiegel, Certified Safety Professional, Professional Engineer, by letter dated October 29, 1984

Mr. Spiegel is of the opinion a serious flaw exists in the proposed definition for nip-point. He is of the opinion that a nip-point is caused by the in-running of rolls, gears and similar moving parts, not a moving and a stationary part. He suggests adding the term "or other moving part(s)" at the end of the proposed definition.

Response

See response to written comment of Mr. Cash Hooper.

IDENTIFIED ALTERNATIVES THAT WOULD LESSEN  
ADVERSE ECONOMIC IMPACT ON SMALL BUSINESSES

It is anticipated that there will not be an adverse economic impact on small business due to the implementation of these regulations. Therefore, no alternatives were identified.

COST ESTIMATES OF THE PROPOSED ACTION

Cost or Savings to State Agencies: None.

Impact on Housing Costs: The revisions will not significantly affect housing costs.

Impact on Small Business: The revisions will not have significant adverse economic impact on small businesses.

Cost Impact on Private Persons or Entities: The revisions will not require private persons or entities to incur additional costs in complying with the proposal.

Federal Funding to State: No Impact.

Determination of Mandate: None.

Cost or Savings to Local Agencies or School Districts: Pursuant to Section 36, Chapter 1284, Statutes of 1974, the proposed action does not create any obligation for reimbursement by the State to any local agency or school district pursuant to Section 2231 of the Revenue and Taxation Code for costs that may be incurred by it in complying with these orders because these orders merely implement Federal law and regulations. The proposed action does not result in other nondiscretionary costs or savings being imposed on local agencies. These regulations impose no mandate on local agencies or school districts.

FIRE PREVENTION AND PROTECTION REGULATIONS

These regulations are not fire prevention or protection standards. Therefore, approval of the State Fire Marshal pursuant to Government Code Section 11342.3 or Health and Safety Code Section 18930(a)(9) is not required.

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