



# OPERATOR'S MANUAL

**Includes Safety, Service and Replacement  
Part Information**

**Model SG87SH  
SURFACE SHARK™  
Floor Grinder**

**Do not discard this manual.  
Before operation, read and comprehend its contents. Keep  
it readily available for reference during operation or when  
performing any service related function. When ordering  
replacement parts, please supply the following information:  
model number, serial number and part number.**

Marshalltown, IA  
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# **MARSHALLTOWN SURFACE SHARK FLOOR GRINDER WARRANTY PROGRAM**

## **PURPOSE**

It is the intention of Marshalltown Company to supply products to the marketplace that reflect the highest standards for materials, design and manufacture. Each original customer is entitled to receive coverage as described by the current limited warranty program for the product(s) purchased, regardless of where it (they) was (were) originally purchased. This program is intended to serve as a method to facilitate the proper communication procedures for the purpose of obtaining applicable coverage for a product.

## **WHAT THE LIMITED WARRANTY COVERS**

Marshalltown Company warrants that each new and unused product and/or accessory sold by it shall be:

- 1) Free from defects in material and workmanship under normal use and service for a period of two (2) years from the original date of purchase.
- 2) To warrant the labor expenses associated with the defects in material and workmanship for a period of one (1) year from the original date of purchase.

The warranty period for materials workmanship and labor expenses shall run concurrent from the original date of purchase (invoice date). No exception to this policy will be made.

The obligation under this warranty program is limited to the current, flat labor rates allowed by it and the replacement and/or repair at its Fayetteville, Arkansas, factory site, or at an authorized dealer designated by it, of such part or parts as shall appear upon inspection to have been defective in material and/or workmanship at the time sold. The part or parts claimed to be defective must be returned to the inspection point, with reasonable transportation charges prepaid. In the event that the part or parts are determined to be covered by the terms of the warranty program, Marshalltown Company will reimburse the original purchaser for reasonable transportation charges. The amount designated, as reasonable transportation charges shall be the sole discretion of Marshalltown Company. Any part or parts replaced under the terms of the warranty program will carry the applicable new product warranty. At the time of requesting warranty service, the original purchaser must present evidence of the purchase date of the part or parts submitted for warranty inspection.

## **ALLOWABLE FLAT LABOR RATES**

Marshalltown Company will pay shop labor repair on warranty at the Marshalltown Company Shop Labor Rate in existence on the date of the warranty claim. A Marshalltown Company Labor Chart will determine the time allowed to complete a repair and will govern the shop labor hours that will be allowed.

Marshalltown's warranty policy will not cover the following; taxes, shop supplies, environment surcharges, air freight, travel time, loss of rental revenue, or any other charges whatsoever or any liabilities for direct, incidental, or consequential damage or delay.

Please fill out your Marshalltown Company warranty card and place it in the mail within 24 hours of delivery.

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## **NOTICE TO OPERATORS**

**IF YOU CAN NOT READ OR DO NOT FULLY UNDERSTAND THE CONTENTS OF THIS MANUAL, PLEASE CONTACT THE FACTORY FOR PROPER ASSISTANCE BEFORE ATTEMPTING TO OPERATE THIS PRODUCT.**

**SI TU NO PUEDES LE'ER O NO COMPRENDES EL CONTENIDO DE ESTE MANUAL FAVOR DE PONERSE EN CONTACTO CON LA FABRICA PARA ASISTENCIA- A PROPIA ANTES DE INTENTAR PARA OPERAR ESTE PRODUCTO.**

**SOLLTEN SIE DIESE GEBRAUCHSANWEISUNG NICHT LESEN KOENNEN ODER ES NICHT VOLLKOMMEN VERSTEHEN, WENDEN SIE SICH BITTE AN DEN HERSTELLER FUER RICHTIGE HILFE EHE SIE VERSUCHEN DIESES PRODUKT ZU OPERIEREN.**

**SI VOUS NE LISEZ OU NE COMPRENDRE ENTIEREMENT LES MATIERES DE CE MANUEL, S'IL VOUS PLAIT, CONTACTEZ L'USINE POUR L'ASSISTANCE APPROPRIEE AVANT D'UTILISER LE PRODUIT.**

 **DANGER**

 **WARNING**

 **CAUTION**

These safety alert symbols identify important safety messages in this manual. When you see these symbols, be alert to the possibility of personal injury and carefully read the message that follows.

Do not allow anyone to operate the Floor Grinder without first reading this Operator's Manual and becoming familiar with its operation. The manufacturer of this Floor Grinder has gone to great extremes to provide the owner(s) and/or operator(s) with the finest equipment available for its intended job function of providing a variety of industry recognized surface preparation functions on horizontal floor surfaces. Yet, the possibility exists that the Floor Grinder can be utilized in and/or subjected to job applications not perceived and/or anticipated by the manufacturer. Such misuse and/or misapplication of the Floor Grinder can lead to the possibility of serious damage, injury or even death. It is the responsibility of the owner(s) and/or operator(s) to determine that the Floor Grinder is being utilized and/or operated within the scope of its intended job function. It is the responsibility of the owner(s) and/or operator(s) to establish, monitor and constantly upgrade all safety programs and/or practices utilized in and for the operation of the Floor Grinder. The purpose of such programs is to provide for owner(s)' and/or operator(s)' safety. Operators must be instructed to recognize and avoid unsafe conditions associated with their work (29 CFR 1926.21 (b)(2)) and/or applicable updated revisions. It is the responsibility of the owner(s) and/or operator(s) to determine that no modifications and/or alterations have been made to the Floor Grinder. Modifications and/or alterations can lead to the possibility of serious damage, injury or even death. It is the responsibility of the owner(s) and/or operator(s) to make this Operator's Manual available for consultation during all phases of operation. Refer to OSHA 2207 and/or applicable updated revisions which contains all OSHA job safety and health rules and regulations (1926 and 1910) covering construction.



# CAUTION

The concept of a powered Floor Grinder has been successfully utilized for many years as a practical solution to many types of surface preparation requirements. The basic concept is proven and well accepted within the associated marketplace. Use of a Floor Grinder requires strenuous work activity. This type of work activity can be considered to be greater in magnitude than that experienced with the use of many other types of both light construction and lawn and garden related equipment. This type of work activity should only be attempted by operators of adequate physical size and stature, mental awareness and physical strength and condition. The body parts most noticeably affected during any specific process are the arms, hands, wrists, shoulders, lower back and legs. The process can also produce excessive stress/strain directly to the back muscles, spinal vertebrae and many other body parts. Back related pain can be a side effect of utilizing a Floor Grinder. An operator with a chronic back related problem or a history of back and/or other medically related problems should not attempt to utilize the Floor Grinder. Use of the Floor Grinder may only aggravate this and any other medically related problem. Because of the diverse type of prevailing job applications, job site conditions, operator experience levels and operator physical characteristics, no warranty, guarantee, representation and/or liability is made by the manufacturer as to the absolute correctness or sufficiency of any operational procedure, operational position and/or technique. There is no absolute guarantee that an operator of any given experience level, physical size and/or physical condition will be immune to the possibility of and/or probable physical side effects of the normal use of the Floor Grinder. Each potential operator must be made aware of and assume the operational and physical liability described and/or associated with the use of the Floor Grinder. Improper use of the Floor Grinder can result in property damage and/or personal injury, including death. Each potential operator not willing to assume the operational and physical liability described and/or associated with the use of the Floor Grinder, should not operate it. Proper levels of operator experience, skill and common sense are essential for maximizing the safe and efficient operation of the Floor Grinder.

Record the Floor Grinder and engine/electric motor serial numbers in the spaces provided below.

\_\_\_\_\_ **Model Number**

\_\_\_\_\_ **Serial Number**

\_\_\_\_\_ **Engine/Electric Motor Serial Number**

\_\_\_\_\_ **Date of Purchase**

Specifications and design are subject to change without notice or obligation. All specifications are general in nature and are not intended for specific application purposes. Marshalltown Company reserves the right to make changes in design, engineering or specifications and to add improvements or discontinue manufacture at any time without notice or obligation. Marshalltown Company and its agents accept no responsibility for variations which may be evident in actual products, specifications, pictures and descriptions contained in this publication.



## **SAFETY PRECAUTIONS**

# **DANGER**

**THE FOLLOWING SAFETY PRECAUTIONS PROVIDE SOME COMMON SENSE GUIDES TO PROMOTE SAFETY AND EFFICIENCY WITH THE FLOOR GRINDER. NO WARRANTY, GUARANTEE OR REPRESENTATION IS MADE BY THE MANUFACTURER AS TO THE ABSOLUTE CORRECTNESS OR SUFFICIENCY OF ANY INFORMATION OR STATEMENT. THESE SAFETY PRECAUTIONS ARE INTENDED TO DEAL PRINCIPALLY WITH COMMON PRACTICES AND CONDITIONS ENCOUNTERED IN THE USE OF THE FLOOR GRINDER AND ARE NOT INTENDED TO BE ALL INCLUSIVE. PROPER LEVELS OF OPERATOR EXPERIENCE, SKILL AND COMMON SENSE ARE ESSENTIAL FOR SAFE AND EFFICIENT OPERATION.**

# **DANGER**

**THE DUSTS/BYPRODUCTS CREATED FROM THE PROCESS ASSOCIATED WITH THE OPERATION OF THE SURFACE GRINDER CAN CONTAIN CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM. THIS STATEMENT IS MADE IN COMPLIANCE TO CALIFORNIA PROPOSITION 65.**

# **WARNING**

**INCORRECT USE OF THE FLOOR GRINDER CAN RESULT IN PROPERTY DAMAGE, PERSONAL INJURY OR EVEN DEATH. TO REDUCE THIS POSSIBILITY, GIVE COMPLETE AND UNDIVIDED ATTENTION TO THE JOB AT HAND AND FOLLOW THESE SAFETY PRECAUTIONS:**

### **PREPARATION**

1) This Floor Grinder is a specialized type of powered equipment, designed for a specific job function and requires adequate and thorough instruction BEFORE it is operated. The size, power, complexity and operating characteristics of this type of powered equipment would dictate that each operator must receive adequate, professional instruction regarding the proper operation of this Floor Grinder before being allowed to utilize it.

BEFORE attempting to utilize this Floor Grinder, read this Operator Manual and the material supplied by the engine/electric motor manufacturer to familiarize each operator with its correct operating procedures. Avoid the urge not to take the necessary time to read this Operator Manual before operating the Floor Grinder. DO NOT OPERATE THE FLOOR GRINDER UNTIL EACH OPERATOR COMPLETELY COMPREHENDS THE CONTENTS OF THIS MANUAL, THE APPLICABLE SAFETY AND OPERATIONAL INFORMATION VIDEO, APPLICABLE SUPPLEMENTAL INFORMATION AND THE INFORMATION SUPPLIED BY THE ENGINE/ELECTRIC MOTOR MANUFACTURER.

2) Develop a comprehensive program for the safe operation of the Floor Grinder by its owner(s) and/or operator(s). Such a program will include, but is not limited to: instructional requirements for operation, applicable OSHA requirements, local laws and regulations, job site safety and a Floor Grinder maintenance program. Constantly examine and upgrade this program to guarantee owner(s) and/or operator(s) safety. Each operator must be fully instructed regarding the specifics of this safety program.

3) Determine that the Floor Grinder is in its original, factory configuration and has not been modified in any manner. Many modifications can result in potentially dangerous configurations that can lead to property damage and/or personal injury. If there are any questions about possible modifications made to the Floor Grinder, contact the Customer Service Department for specific information BEFORE utilization. There is no charge for this service. Do not operate the Floor Grinder without the use of the original equipment V-belt guard. Use of the Floor Grinder without an approved belt guard can lead to property damage and/or personal injury.

4) Minors should never be allowed to operate the Floor Grinder. Bystanders, especially children and animals, should not be allowed in the area where the Floor Grinder is in use. The grinding process can result in flying particles being emitted at high velocity and striking the operator and/or onlookers. This can lead to the possibility of property damage and/or personal injury. Keep all body parts, loose clothing, foreign objects and onlookers clear of the rotating discs, multi-accessory attachments and flying particles.

5) Operators must be in adequate physical condition, mental health and not under the influence of any substance (drugs, alcohol, etc.) which might impair vision, dexterity or judgment. Working with the Floor Grinder is strenuous. If you have any condition that might be aggravated by strenuous work, check with your doctor BEFORE operating the Floor Grinder. Guard against the possibility of back related injuries. Always lift the Floor Grinder with leg muscles and not with the back. Use of the Floor Grinder requires that the operator be of proper height, weight and strength to maximize operational efficiency and minimize the possibility of personal injury.

6) Prolonged use of the Floor Grinder (or other, similar machines) exposes the operator to vibrations which may produce Whitefinger Disease (Raynaud's Phenomenon). This phenomenon reduces the hand's ability to feel and regulate temperature, produces numbness and burning sensations and may cause nerve and circulation damage and tissue necrosis. Antivibration systems do not guarantee that you will not sustain Whitefinger Disease. Therefore, continuous and regular users should closely monitor the condition of their hands and fingers. After each period of use, exercise to restore normal blood circulation. If any of the symptoms appear, seek medical advice immediately.

7) Clothing must be sturdy and snug fitting, but allow complete freedom of movement. Never wear loose fitting jackets, scarves, neckties, jewelry, flared or cuffed pants or anything that could become caught on controls or moving parts. Wear long pants to protect your legs. Protect your hands with heavy duty, nonslip gloves to improve your grip. Good footing is most important when operating the Floor Grinder. Wear sturdy boots with nonslip soles. Steel-toed safety shoes are highly recommended. Never wear tennis shoes or other, similar type shoes which afford little or no protection. Wear an approved safety hard hat to protect the operator's head where there is a danger of head injuries.

8) Noise, generated by the engine and/or the actual grinding process itself, can damage your hearing. A gasoline engine powered Floor Grinder operates with a noise emission greater than 70dBA. Hearing protection is required while operating or when near operating equipment. Continuous and regular operators should have their hearing checked regularly.

9) Flying debris, generated by the grinding process, can cause eye injury. Eye protection is required while operating or when near operating equipment.

10) Visually inspect the Floor Grinder, components, tools and accessories for damaged or worn parts. BEFORE each use:

a) Disconnect the engine spark plug wire or power source cable.

b) Clean and remove all accumulated foreign matter from the wheels and determine that each rotates freely.

c) Clean and remove all accumulated foreign matter from inside the main frame area.

d) Inspect the V-belt drive system for proper tension, wear and general condition. Replace each component as necessary.

e) Inspect the multi-accessory disc and gimbal head assembly for excessive wear and structural integrity. Replace each component as necessary. The multi-accessory disc rotating at high speed during the specific process can be subject to high wear rates if the installed attachment is not properly maintained and/or replaced at regular service intervals.

f) Determine that operator controls work freely, all safety devices are operative and information decals are readable.

g) Check to see that the Floor Grinder and all related accessories are in good, mechanical condition BEFORE utilization.

h) Reconnect the spark plug wire or power source cable as applicable.

9) Contact appropriate representatives to determine if/ where electrical cables, gas lines and other hazardous items are buried under the work surface BEFORE utilization. The Floor Grinder and related accessories are not insulated. Contact with buried electrical cables, gas lines and other hazardous items can result in electrocution and/or an explosion.

11) Know how the controls operate. Know how to stop the engine or electric motor quickly in an emergency. Always start the engine or electric motor according to the instructions as outlined in this manual to minimize the possibility of unexpected contact with the work surface. Unexpected contact with the work surface can cause loss of machine control, and the possibility of property damage and/or personal injury.

12) Ground an electrically powered Floor Grinder motor securely. Determine that any “grounding” wire and/or device is, in fact, properly grounding the motor. Failure to properly ground the motor may cause an electrical shock and/or electrocution, resulting in property damage and personal injury including death. Electrical wiring and all connections should be performed by a qualified electrician. Operating the electric motor from an improper voltage/ampere power source can result in property damage and/or personal injury.

13) When operating an electrically powered Floor Grinder on a surface containing water or other electrically conducting liquid, special precautions must be taken to minimize the possibility of operator electrocution. One such precaution is to wire and operate the electric motor from a clean, 20 Ampere, 115 Volt AC, power source in conjunction with a ground fault circuit interrupter (GFCI). A GFCI is a safety device that disconnects power from a circuit to a load when a potentially dangerous condition occurs. The GFCI opens the circuit when the fault current flow from a power line to a ground exceeds the safe limit for humans. The GFCI protects against harmful electrical shock to a person caused by contact with a defective electrical product. A GFCI differs from a fuse or circuit breaker. A fuse or circuit breaker opens the circuit when the total current flow in the power line exceeds the safe limit of the power line. They are designed to protect against fire caused by overheating of the power line. Use of a GFCI gives on the job protection from electrical shock hazards caused by ground faults in commercial, industrial and residential applications. They are simple and easy to use: plug a portable GFCI into any suitable, grounded extension cord and plug the Floor Grinder into the GFCI for automatic protection against ground faults. For specific information, consult current National Electrical Code® publications and OSHA publications 210-22D (or current revision) for construction sites and 555-3 (or current revision) for use around any area containing water.

14) Never exceed the recommended capacities of the Floor Grinder. Refer to the Specifications section of this manual for more detailed information.

### **OPERATION**

1) Give complete and undivided attention to the job at hand. Do not chew gum, smoke and/or use smokeless tobacco while utilizing the Floor Grinder. Do not attempt to eat and/or drink while utilizing the Floor Grinder. Determine that eyeglasses and/or hearing aid devices and other medical related devices are properly

secured. Keep shoes properly laced. Use of the Floor Grinder is strenuous and causes fatigue. Help prevent the cause of an accident. Plan to take work brakes as required to help maintain proper mental and physical alertness.

2) This Floor Grinder is not sealed or insulated. Do not operate this machine in an explosive atmosphere or near combustible materials. Refer to current OSHA and National Electric Code® rules and regulations.

3) The Floor Grinder is designed for use by one operator. Use of the Floor Grinder by more than one operator can lead to confusion and loss of control, resulting in property damage and/or personal injury. Never operate the Floor Grinder with an improper number of operators. Such a configuration can result in property damage and/or personal injury. If it is felt that more than one person is required to operate the Floor Grinder, STOP and contact the Customer Service Department for specific operational and service/maintenance information. There is no charge for this service.

4) Do not operate the Floor Grinder with onlookers close by. Caution all onlookers to stand clear. The grinding process can result in flying particles being emitted at high velocity and striking the operator and/or onlookers This can lead to the possibility of property damage and/or personal injury. Wear proper safety eyewear Keep all body parts, loose clothing and foreign objects clear of the rotating disc.

5) Start the engine or electric motor according to the instructions as outlined in this manual to minimize the possibility of unexpected contact with the work surface. Unexpected contact with the work surface can cause the loss of machine control and the possibility of property damage and/or personal injury.

**6) Start and operate a Floor Grinder or a vacuum system that is powered by a gasoline engine only in a well ventilated area. Carbon Monoxide fumes given off by an engine are poisonous. Breathing these fumes can result in property damage and/or personal injury.** Operate the Floor Grinder only when/where visibility and light are adequate for the job at hand. Work carefully. Always hold the operator handle firmly with both hands. Wrap your fingers around the handle, keeping it cradled between your thumbs and fingers. Always make sure the operator handle is in good condition and free of moisture, pitch, oil or grease. Wear gloves to improve your grip. Never leave the Floor Grinder running unattended.

8) Special care must be exercised on slippery conditions and on difficult, uneven surfaces. Watch for cracks, high spots and other, surface irregularities. Keep proper footing and balance at all times. The normal use of this machine is on level surfaces. Other terrains can be dangerous and should be avoided. Only properly trained operators should attempt these techniques.

9) Never start the engine or electric motor with the Floor Grinder directly over cracked, uneven or irregular surfaces. Contact with these types of obstructions during the starting process can reduce machine control, resulting in property damage and/or personal injury. Start the engine or electric motor according to the instructions as outlined in this manual.

10) Contact with a hot engine muffler of an engine can cause property damage and/or personal injury. Remain clear of a hot engine muffler. Do not over speed the engine by altering the governor setting or by disconnecting the engine governor. Serious damage to the engine and/or personal injury can result.

11) Clean and remove all accumulated foreign matter from inside the main frame area after each use. This practice will maximize bearing and V-belt service life.

12) Because this Floor Grinder is classified as a low cost, hand held, low horsepower, portable type machine, it is limited in the number of practical and/or suitable job applications. A particular job site, actual surface conditions, job specifications and operator skill/common sense may dictate that a different type of machine (with characteristics of higher purchase cost, being mounted to a carrier vehicle, with greater horsepower and less mobility), method and/or process be utilized to properly complete the job with the degree of efficiency and safety required. Contact the Customer Service Department for specific information regarding suitable job applications, job sites surface conditions and operator experience/skill/common sense recommendations for this Floor Grinder BEFORE utilization. There is no charge for this service.

### **MAINTENANCE, REPAIR AND STORAGE**

1) Use only genuine, approved replacement parts and accessories for maintenance and repair. Use of parts and accessories manufactured by others can result in property damage and/or personal injury.

2) Follow the Service instructions as outlined in the appropriate section of the Operator Manual.

3) Always stop the engine and disconnect the spark

plug wire or power source cable BEFORE checking or working on the Floor Grinder.

4) Always properly maintain the Floor Grinder. Frequently check all fasteners and individual parts. Built in safety features are effective only if they are maintained in good working condition. Replace any questionable part or assembly with a genuine, factory approved, replacement part. Do not forsake proper maintenance for the price of a few replacement parts. Proper maintenance does not cost... it actually pays dividends. Do not attempt any maintenance repair work not described in this manual. Have such work performed at your dealer's service facility.

5) A worn or damaged engine muffler is a fire hazard and may cause loss of hearing. Check to see that the muffler is in good condition. If the muffler is equipped with a spark arresting device, determine that it is in proper working condition at regular service intervals. Replace the spark arresting device with an approved replacement if there is any question of its integrity. It is the responsibility of the owner(s) and/or operator(s) to provide for and properly maintain a USDA approved, spark arresting muffler in an operating area specified by law. Check with appropriate governing agencies for more specific information. The Floor Grinder must not be operated if the muffler is faulty or has been removed. Contact with a hot engine muffler can cause property damage and/or personal injury.

6) Do not operate the Floor Grinder without the use of a factory approved V-belt guard that is maintained in proper structural condition. Frequently inspect the belt guard for signs of wear, cracks and other signs of fatigue. If there is any question regarding the structural integrity and/or condition of the belt guard, properly dispose and replace with a genuine, factory approved, replacement part only.

7) Maintain all safety and operation decals in proper condition. If any decal becomes damaged and/or unreadable, replace with a genuine, factory approved, replacement part only.

8) The Floor Grinder utilizes many self locking hexagon head nuts to minimize the effects of vibration. Replace all self locking hardware with genuine, factory approved, replacement parts only.

9) Consult the information supplied by the engine or electric motor manufacturer for specific information relative to proper operational, lubrication and storage requirements.

## GENERAL SAFETY INFORMATION



### **Physical Exertion**

Operating the Floor Grinder requires proper physical stamina and mental alertness.

Improper operation can result in physical injury and/or damage to the machine.

Operators must be alert and of proper physical size and condition.



### **Noise**

Use of the Floor Grinder can produce a noise emission level greater than 70dba. Exposure to high noise emission levels can result in hearing loss or damage. Wear hearing protection when near or operating the Floor Grinder.



### **Flying Debris**

Use of the Floor Grinder can result in flying debris.

Contact with flying debris can result in personal injury.

Wear eye protection and appropriate safety apparel when near or operating the Floor Grinder.



### **Burn Danger**

An engine muffler or an electric motor can become hot.

A hot muffler or electric motor can result in personal injury.

Do not touch a hot engine muffler or electric motor.



### **Rotating Disc Entrapment**

The dust and safety shield does not provide complete protection against contact or entrapment.

Body contact with the rotating disc can result in personal injury.

Do not come in contact with the rotating multi-accessory disc.



### **Body Strain**

Use of the Floor Grinder can result in body strain.

Strain can inflict damage to lower back and upper body parts.

Minimize the effects of strain by operating the Floor Grinder with proper operating positions.



### **Kickback**

Rotating disc contact with a floor joint, anchor bolt or other obstruction can thrust the handle toward the operator with a sharp, counter-clockwise rotation called kickback. Kickback forces can inflict damage to hands, arms and other upper body parts. Assume a proper operating position when operating the Floor Grinder to maximize control and minimize the effects of kickback.

# ASSEMBLY

The SG87SH Floor Grinder is shipped from the factory secured on a specially designed wooden pallet and protected from external damage by a corrugated carton or wood crate. If shipped with a corrugated carton, the Floor Grinder can be secured to the pallet by wood laths nailed to the pallet body. Remove the carton or crate immediately upon receipt using suitable tools to remove the nails.

## REMOVING THE FLOOR GRINDER FROM THE PALLET

### **Application: SG87SH SURFACE SHARK**

Tools Required:

- 1 each, pliers.
- 1 each, claw hammer or a hammer and an appropriate pry bar.

The Floor Grinder is secured to the pallet with steel banding. Using the pliers, cut and remove the banding. The Floor Grinder can then be removed from the pallet.

## **WARNING**

**WEAR SAFETY GLASSES AND OTHER APPROPRIATE SAFETY APPAREL WHEN CUTTING THE STEEL BANDING AND/OR REMOVING THE CORRUGATED/WOOD SHIPPING CRATE.**

Visually inspect the shipment for freight damage and/or missing parts. If shipping damage is evident, contact the delivering carrier immediately to arrange for an inspection of the damage by their claims representative. Federal law requires that a claim be filed within a specific time period. If missing parts are detected, notify your dealer who will assist you in obtaining them.

The Floor Grinder is shipped from the factory completely assembled. If ordered with the Floor Grinder, multi-accessory attachments can be shipped separately to minimize the potential for loss during shipment.

Check all fasteners for proper security. Consult a fastener torque chart for the proper torque value if any fastener is found to require retorquing.

The Safety and Dust Shield Assembly Kit is included as a standard feature. The Safety and Dust Shield is designed to perform the following job functions:

1) To contain loose materials within the platform area of the Floor Grinder as a direct result of a specific process. This includes materials removed from the surface as well as any slurry mixture utilized to help maximize material removal efficiencies.

2) To provide a method for a vacuum system to help remove airborne, dust-related materials from within the skirt assembly. Dust related materials are usually created as a result of any specific process. A specific job application may require the reduction and/or minimization of airborne dust related materials from the atmosphere while the Floor Grinder is being operated. The kit includes a hose and necessary hardware to connect the skirt assembly to the 3 inch diameter vacuum attachment fitting located at the rear of the machine. Use of the kit along with a suitable vacuum system will not completely remove all airborne and loose materials directly from the work surface.

## **WARNING**

**THE SAFETY AND DUST SHIELD ASSEMBLY KIT IS RECOMMENDED FOR USE WHERE AND/OR WHEN PERMITTED ON SPECIFIC JOB APPLICATIONS TO MAXIMIZE OVERALL SAFETY AND PRODUCTIVITY. FINAL DISCRETION IS THE RESPONSIBILITY OF THE OWNER(S) AND/OR OPERATOR(S).**

## **WARNING**

**THE USE OF THE SAFETY AND DUST SHIELD ASSEMBLY KIT ALONG WITH A SUITABLE VACUUM SYSTEM TO REMOVE HAZARDOUS CLASSIFIED, AIRBORNE MATERIALS FROM THE WORK SURFACE WILL NOT ELIMINATE THE REQUIREMENT FOR PROPER SAFETY RELATED EQUIPMENT, OPERATING PLAN AND/OR PROCEDURES.**

**USE OF THE SAFETY AND DUST SHIELD ASSEMBLY KIT ALONG WITH A SUITABLE VACUUM SYSTEM WILL NOT COMPLETELY REMOVE ALL LOOSE MATERIALS FROM THE WORK SURFACE. HAZARDOUS CLASSIFIED, LOOSE MATERIALS MUST BE REMOVED FROM THE WORK SURFACE BY PROCESSES AND/OR PROCEDURES MEETING THE APPLICABLE OSHA AND/OR EPA REQUIREMENTS.**

## **INSTALLING THE SG87SH SAFETY AND DUST SHIELD ASSEMBLY KIT**

### **Application: SG87SH SURFACE SHARK**

The SG87SH Floor Grinder is shipped from the factory with the SG87SH-1000 Safety and Dust Shield Assembly Kit installed. Because of the main frame design configuration, normal use of the Floor Grinder will place the rotating multi-accessory disc in close proximity to vertical obstructions, including walls, machinery and body parts. Normal operation of the Floor Grinder is with the kit installed. If a specific job application requires the removal of the safety and dust shield, contact the Customer Service Department for assistance. There is no charge for this service.

## **WARNING**

**DO NOT OPERATE THE SG87SH SURFACE GRINDER WITHOUT THE SG87SH-SAFETY AND DUST SHIELD ASSEMBLY KIT PROPERLY INSTALLED.**

## **OPERATION**

### **THEORY OF OPERATION**

#### **Application: SG87SH SURFACE SHARK**

The SG87SH Floor Grinder operates on the principle of multi-accessory attachments being utilized at rotational speeds to make direct contact with a work surface. Various types of multi-accessory attachments are secured to recesses provided in the aluminum disc located on the bottom of the machine. The specific type of multi-accessory attachment utilized during the grinding process directly affects the type of material removed, the material removal rate and the resulting flatness and smoothness of the surface.

The grinding process is directly controlled by these conditions:

- 1) The use of a suitable mechanism (multi-accessory attachment) of proper design and configuration to grind the work surface and remove material while delivering acceptable service life.
- 2) Sufficient static weight supporting the multi-accessory attachment to allow it to effectively penetrate the work surface and remove material.

- 3) Adequate horsepower capable of propelling the multi-accessory attachment against the work surface to deliver acceptable productivity rates.

Since no two materials are exactly alike, no two work surface materials can be penetrated and removed by the exact same method. The nature of the grinding process, along with operator experience, skill and common sense, would suggest that efficient and productive material removal is a matter of trial and error. Combinations of multi-accessory attachment type, condition, and feed rate are direct factors that will also determine the overall success of the job application.

## **MULTI-ACCESSORY ATTACHMENTS AND APPLICATIONS**

### **Application: SG87SH SURFACE SHARK**

While individual multi-accessory attachment design and configuration may vary, basic operational characteristics are identical: impact upon a work surface material and remove a percentage of the material. This common operational characteristic has led to the development of the following popular multi-accessory attachments:

#### **Grinding Stones**

Grinding stones are offered in C10 coarse. All stones incorporate silicon carbide as the abrasive medium and employ a clay binder as the matrix material. Vitrified type stones utilize an oven baking process that produces greater service life over other manufacturing processes. As the clay material wears away, it exposes new, sharp, edges of the imbedded silicon carbide material. All stones have the identical 2" x 2" x 4" dimensions and are secured to the machine by the use of a hardwood or plastic wedge. FIGURE 1.

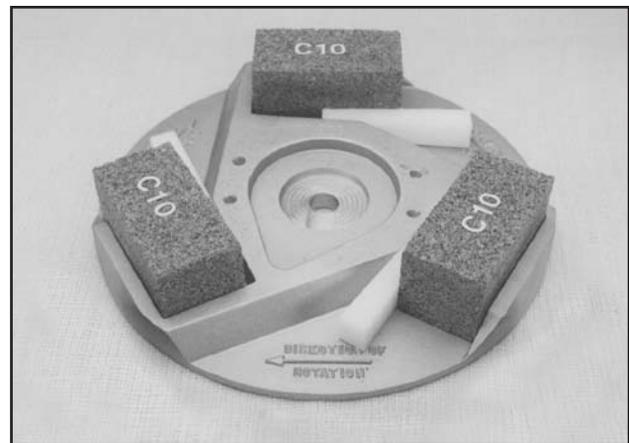


FIGURE 1

The designation system for the grinding stones utilizes a system similarly utilized for most abrasive products: the larger the number, the finer the grain structure and usually, the smoother the resulting finish.

C10 coarse grade stones are the most popular utilized stones and result in maximum material removal rates. They are utilized for general grinding and the removal of trowel marks, high spots and rough sections on concrete surfaces. The average service life is approximately 4 to 10 hours.

### SHARK TOOTH Industrial Floor Coatings Removal System

This multi-accessory attachment is designed to remove many urethanes, epoxies, paints, mastics and other, similar material accumulations from concrete floor surfaces. FIGURE 2. Each assembly utilizes two tungsten carbide inserts set at a precise angle. The rotating inserts “cut and shave” against the work surface material with a “scraping” action that removes materials with highly productive results. To increase the effectiveness of the inserts, the scraper block design incorporates a Lord® type rubber mount that helps absorb damaging shocks while allowing the inserts to more easily follow local variations in the surface contour. Units are secured to the machine with hardwood or plastic wedges.



FIGURE 2

The productivity of the product is directly dependent upon the yield and tensile strength of the material being removed. Material thickness has also shown to have a direct effect on overall productivity. For example, the SHARK TOOTH system is a highly productive method for removing thick paint accumulations from factory floors. Production rates of up to several hundred square feet per hour can be realized. However, many thin film

(ie: 5 mill thickness and thinner) urethane coatings present a much more difficult removal problem. Since removal rates are also directly affected by applied down force. Up to 150 lbs of external weight can be added to the Floor Grinder to increase productivity. Cement blocks or stacked bags of cement make excellent weights and can be secured with “bungy” cords or other means with the provided holes in the top cover. FIGURE 3.



FIGURE 3

Each insert provides eight scraping edges. As an edge becomes dull and worn, the insert can be turned and reinstalled to expose a new, sharp edge. FIGURE 4. When all four edges of one side become worn and dull, the insert can be turned over to expose an additional four edges.

Many materials such as adhesives, rubber deposits and mastics have the tendency to extrude or smear rather than shear from the concrete floor material. The occurrence is also aggravated by higher ambient temperatures. This problem can be significantly reduced with the addition of various amounts of water or a water saturated, fine sand combination placed on the floor. The use of the SG87SH Safety and Dust Shield Assembly with the Floor Grinder is highly recommended to contain the water/sand slurry mixture from damaging surrounding walls and other vertical surfaces. FIGURE 5.

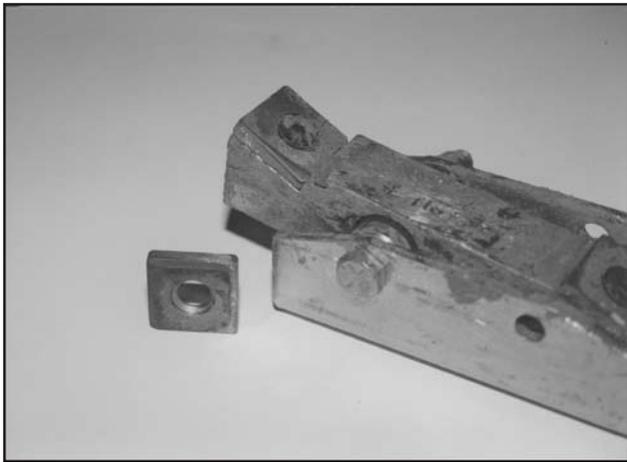


FIGURE 4



FIGURE 5

To index the tungsten carbide insert, proceed as follows:

Tools required:

- 1 each, 5/32 inch Allen wrench.
- 1 each, 7/16 inch wrench.

1) Clean the SHARK TOOTH unit with a suitable safety solvent to remove excess material build-up. Remove as much foreign material as possible from the female hexagon socket area of the cap screw. This will allow the wrench to make full contact and maximize the torque transfer to the cap screw.

## CAUTION

Follow all safety precautions for the safety solvent.

2) Remove the cap screw from the unit. Clean the newly exposed areas of the insert and SHARK TOOTH unit with the safety solvent. Clean and inspect the threaded holes found in older units for excess wear. SHARK TOOTH units feature a through hole design.

3) Index the insert to expose a new edge. Reinstall the cap screw (lock washer and hexagon nut on new style units) and apply a torque value that properly seats the insert firmly against the body of the unit.

## CAUTION

An insufficient seating torque value will allow the insert to become loose from the unit body, resulting in premature component wear and improper scraping action. An excessive torque value will strip the threads of the cap screw or unit body.

4) Determine that the unit body is free to rotate about the 5/16 inch diameter cap screw that retains the body to the unit. A body that does not freely rotate indicates that a material build-up exists between the rubber mount and retaining cap screw. This build-up must be removed by disassembling the body from the unit and cleaning all contact areas with the safety solvent. FIGURE 6.

The SHARK TOOTH system is designed to be installed with the edge of the tungsten carbide inserts facing the direction of rotation. Markings are provided to indicate proper direction of rotation.



FIGURE 6

# CAUTION

Installing the SHARK TOOTH system with the tungsten carbide inserts facing opposite the rotation direction will not deliver satisfactory material removal rates and result in premature component wear requiring early replacement.

## Diamond Segment Block

Diamond segments are retained into a steel block assembly and deliver up to 5 times greater productivity rates than the silicon carbide stones. FIGURE 7. The design resists clogging while delivering a conservative service life up to 15 times longer than the stones. Diamond is the ideal choice for larger concrete removal projects and the removal of epoxies, paints and many thin film coatings.

The concept is especially useful for removing a thin layer of concrete in final preparation for a new coating application. Can be used in both wet and dry job applications. Worn inserts are easily replaced in a matter of seconds. Service life is dependent upon many variables, but can approach 35,000 square feet per set, making it a cost efficient solution for many job applications.



FIGURE 7

## INSTALLING A MULTI-ACCESSORY ATTACHMENT IN THE ALUMINUM DISC

Application: SG87SH SURFACE SHARK

Tools required:

1 each, small hammer.

Parts required:

3 each, Part# WEDGE Mounting Wedge.

# DANGER

**WHEN INSTALLING A MULTI-ACCESSORY ATTACHMENT ON THE FLOOR GRINDER ALWAYS WEAR THE APPROPRIATE SAFETY EYEWEAR AND APPAREL TO MINIMIZE THE POTENTIAL FOR INJURY FROM FLYING DEBRIS. FLYING DEBRIS CAN RESULT IN PROPERTY DAMAGE AND/OR PERSONAL INJURY.**

1) Disconnect the Floor Grinder from the extension cord or from the power source

2) Tilt the Floor Grinder back until the operator handle comes in contact with the surface. The Floor Grinder may not be in a stable position in this configuration. To minimize the possibility of property damage and/or personal injury, properly secure an appropriate weight to the handle for added stability. Other means can also be utilized to support the frame and provide proper machine stability. Appropriate wheel chocks are also recommended. FIGURE 8.

# WARNING

**EXERCISE EXTREME CAUTION WHEN WORKING NEAR OR UNDER THE FLOOR GRINDER WITH THE OPERATOR HANDLE TILTED BACK IN THE SERVICE POSITION. IF THE FLOOR GRINDER IS NOT POSITIONED IN A STABLE CONFIGURATION, WITH ADEQUATE COUNTERWEIGHT PROPERLY SECURED, UNEXPECTED MOVEMENT CAN ALLOW THE FLOOR GRINDER TO FALL BACK TO THE WORK SURFACE. THE RESULT CAN BE PROPERTY DAMAGE AND/OR PERSONAL INJURY.**

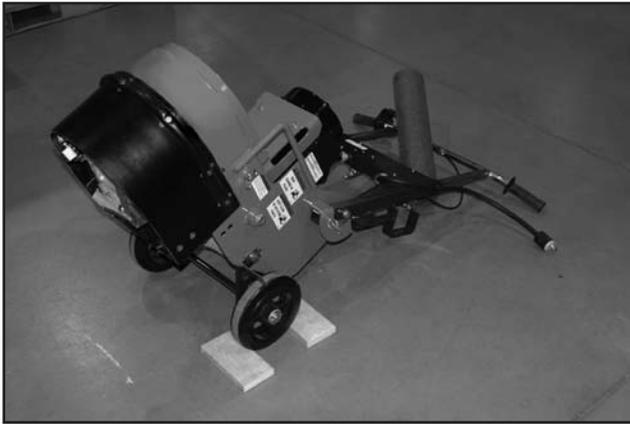


FIGURE 8

3) Mount the multi-accessory attachment into the slots provided in the multi-accessory disc. If the attachment is directional in design, determine that its mounting position in the disc allows for proper operation.

4) Force Part# WEDGE Mounting Wedge into the area between the multi-accessory attachment and the inside rib of the aluminum disc by hand. The straight side of the mounting wedge contacts the multi-accessory attachment. The angled side of the mounting wedge contacts the rib of the disc. FIGURE 9. **An improper mounting configuration is depicted in FIGURE 10.**



FIGURE 9

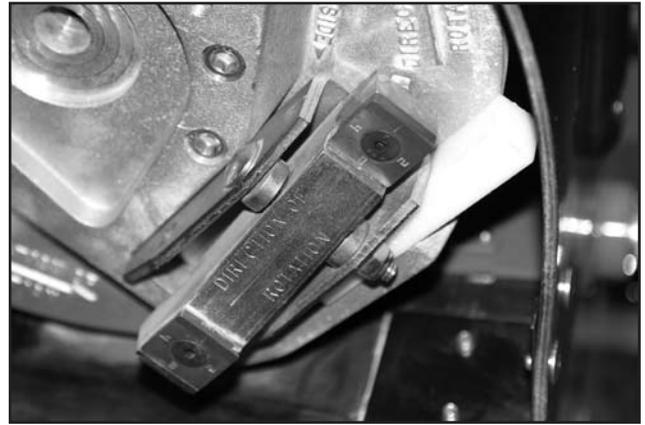


FIGURE 10

## DANGER

**DO NOT OPERATE THE FLOOR GRINDER WITH THE PART# WEDGE MOUNTING WEDGES IN AN IMPROPER MOUNTING CONFIGURATION. MOUNTING A WEDGE BETWEEN THE MULTI-ACCESSORY ATTACHMENT AND THE OUTSIDE RIB OF THE ALUMINUM DISC CAN ALLOW THE WEDGE TO COME IN DIRECT CONTACT WITH A VERTICAL WALL AND/OR FLOOR OBSTRUCTION. SUCH OCCURRENCE CAN RESULT IN LOSS OF MACHINE CONTROL, PROPERTY DAMAGE AND/OR PERSONAL INJURY.**

**BEFORE OPERATING THE FLOOR GRINDER WITH ANY MULTI-ACCESSORY ATTACHMENT, DETERMINE THAT NO PORTION OF THE ATTACHMENT AND/OR MOUNTING WEDGE EXTENDS BEYOND THE NORMAL PERIMETER OF THE ALUMINUM DISC.**

5) Using the hammer, strike the wider side of the mounting wedge with controlled, direct blows to firmly seat the multi-accessory attachment into the aluminum disc. Usually one or two direct blows will be sufficient to properly retain the attachment.

## CAUTION

**Do not apply excessive impact force to the mounting wedge to cause splitting. Once the multi-accessory attachment is seated in the aluminum disc, further impact force on the wedge will not increase the seating force.**

# CAUTION

Improper seating force created by an excessive blow to the mounting wedge will not allow the attachment to properly release from the aluminum disc if direct contact with a foreign object is made. Such occurrence can result in property damage and/or personal injury. The correct seating force for a specific job application is that which is sufficient to retain the attachment, yet still allows it to release from the aluminum disc when direct contact with a foreign object is made.

6) Determine that the multi-accessory attachment is in full contact with the aluminum disc. If not in proper contact, refer to **REMOVING A MULTI-ACCESSORY ATTACHMENT (not including the multi-segmented, dry diamond disc) FROM THE ALUMINUM DISC** for proper removal procedures.

7) Return the Floor Grinder to its normal operating position.

8) Determine that the ON/OFF switch located on the operator handle is in the OFF position. If the Floor Grinder is to be used immediately, reconnect the extension cord or the power source.

# WARNING

**UNEXPECTED MACHINE START UP CAN RESULT IN PROPERTY DAMAGE AND/OR PERSONAL INJURY.**

## REMOVING A MULTI-ACCESSORY ATTACHMENT FROM THE ALUMINUM DISC

**Application: SG87SH SURFACE SHARK**

Tools required:

1 each, small hammer.

1 each, drift punch or small, pry bar.

# DANGER

**WHEN REMOVING A MULTI-ACCESSORY ATTACHMENT FROM THE FLOOR GRINDER, ALWAYS WEAR APPROPRIATE SAFETY EYEWEAR AND APPAREL TO MINIMIZE THE POTENTIAL FOR INJURY FROM FLYING DEBRIS. FLYING DEBRIS**

**CAN RESULT IN PROPERTY DAMAGE AND/OR PERSONAL INJURY.**

1) Disconnect the Floor Grinder from the extension cord or from the power source.

2) Tilt the Floor Grinder back until the operator handle comes in contact with the surface. Follow the instructions for this procedure as outlined in **INSTALLING A MULTI-ACCESSORY ATTACHMENT (not including multi-segmented, dry diamond blades) IN THE ALUMINUM DISC.**

3) The multi-accessory attachment can be removed by both the use of a drift punch or small, pry bar. If utilizing the drift punch, strike the narrow end of the mounting wedge with controlled, direct blows until the attachment is released from the aluminum disc. If utilizing the pry bar, position the bar between the aluminum disc and the attachment. Use controlled, direct blows to the bar in order to force the attachment loose from the aluminum disc. FIGURE 11.



FIGURE 11

# CAUTION

**Do not utilize excessive force when removing a multi-accessory attachment with the pry bar. Excessive force can result in damage to the aluminum disc. Proper removal techniques by both methods will result in minimal damage to the aluminum disc.**

4) Return the Floor Grinder to its normal operating position.

5) Determine that the ON/OFF switch located on the operator handle is in the OFF position. If the Floor Grinder is to be used immediately, reconnect the extension cord or the power source.

# WARNING

UNEXPECTED MACHINE START UP CAN RESULT IN PROPERTY DAMAGE AND/OR PERSONAL INJURY.

## TRANSPORTING THE FLOOR GRINDER

**Application: SG87SH SURFACE SHARK**

The Floor Grinder has an operational weight that prohibits one person from loading and/or unloading it alone by conventional, physical efforts.

# WARNING

**DO NOT ATTEMPT TO LIFT THE FLOOR GRINDER UP INTO A TRANSPORTATION VEHICLE WITH THE USE OF ONE PERSON ALONE. DO NOT ATTEMPT TO LOWER THE FLOOR GRINDER FROM A TRANSPORTATION VEHICLE WITH THE USE OF ONE PERSON ALONE. LIFT AND/OR LOWER THE FLOOR GRINDER ONLY BY THE USE OF A POWER TAILGATE UNIT, A SUITABLE HOIST UNIT OF PROPER CAPACITY AND/OR CONFIGURATION OR BY THE USE OF A PROPER QUANTITY OF PERSONNEL IN PROPER PHYSICAL CONDITION.**

1) A lifting bail device can be used to facilitate lifting by a mechanical device incorporating a chain and suitable attachment device. The location of the lifting bail may not always locate the exact position of the center of gravity for the Floor Grinder. Lifting handles are also provided on both sides of the transmission case. These handles can be utilized by personnel whenever lifting/lowering the Floor Grinder or as attachment points for a chain sling whenever a suitable hoisting device is utilized. The SG87SH Floor Grinder can also be lifted or lowered by the use of a fork lift time being inserted between the handles and transmission case.

# WARNING

**EXERCISE EXTREME CAUTION WHEN UTILIZING A MECHANICAL DEVICE FOR LIFTING THE FLOOR GRINDER. UTILIZE THE MECHANICAL DEVICE IN ACCORDANCE TO BOTH ITS STATED STATIC AND DYNAMIC LOADING ENVELOPES. DO NOT UTILIZE THE MECHANICAL DEVICE UNTIL THIS INFORMATION IS PROPERLY KNOWN AND**

**UNDERSTOOD BY ALL APPLICABLE PERSONNEL. FAILURE TO PROPERLY UTILIZE THE MECHANICAL DEVICE CAN RESULT IN PROPERTY DAMAGE AND/OR PERSONAL INJURY.**

2) To minimize the possibility of damage to the Floor Grinder, always transport in its normal, upright position. All equipment must be secured in/on vehicles with suitable strapping or tie-downs. Personnel should not be transported in the same compartment as equipment and fuel supplies.

## ADJUSTING THE OPERATOR HANDLE HEIGHT

**Application: SG87SH SURFACE SHARK**

The SG87SH S Floor Grinder incorporates a telescoping type handle that can be adjusted to compensate for variances in operator heights. Handle height can be infinitely varied between the stop limits. No external tools are required. Correct handle height can increase overall machine productivity and reduce operator fatigue.

1) Loosen the handle knobs located at the rear of the handle. Extend the knobs out approximately 1/2 inch (13 mm). FIGURE 12.

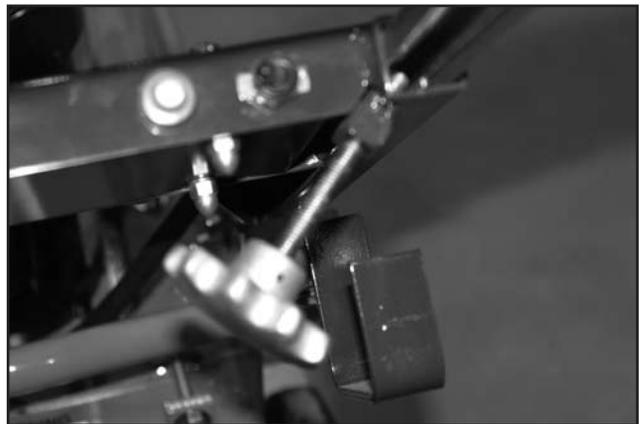


FIGURE 12

2) Position the operator handle grips at a height convenient to the specific operator. In most configurations, the operator handle grips will be at approximately waist level.

3) Tighten the handle knobs finger tight. Determine the adjustable section of the operator handle is properly secured tight against the fixed section.

## CAUTION

Improper knob tension and/or improperly securing the operator handle to the main frame can result in an unstable platform configuration. An unstable platform configuration can result in property damage and/or personal injury.

## WARNING

**DETERMINE THE THREADED STUDS ARE PROPERLY SEATED AGAINST THE SLIDING SECTION OF THE OPERATOR HANDLE. THE ADJUSTABLE SECTION MUST BE FIRMLY SECURED TIGHT AGAINST THE FIXED SECTION OF THE OPERATOR HANDLE. IMPROPERLY SECURED STUDS CAN RESULT IN INADVERTENT OPERATOR HANDLE MOVEMENT AND/OR SEPARATION, RESULTING IN PROPERTY DAMAGE AND/OR PERSONAL INJURY.**

### STARTING THE FLOOR GRINDER ON THE JOB SITE

- 1) Position the Floor Grinder on a flat and level surface of firm foundation.
- 2) Install the Multi-Accessory Attachment required for the specific job application per the procedures as outlined in this manual.
- 3) Determine that the ON/OFF master switch located on the operator handle is in the OFF position. FIGURE 13.



FIGURE 13

## WARNING

**UNEXPECTED MACHINE START UP CAN RESULT IN PROPERTY DAMAGE AND/OR PERSONAL INJURY.**

4) The SG87SH Floor Grinder is designed to operate from a clean, 15 ampere, 115 VAC, 60 Hz, nominal power source. A clean power source refers to the amperage available from the individual electrical circuit selected. Additional electrical products already utilizing the same circuit will reduce the available amperage and can result in starting and operational difficulties.

## CAUTION

**Operating the Floor Grinder from a power source of improper voltage and/or amperage will result in unreparable damage to the electric motor and related controls.**

5) Providing proper voltage and amperage levels to the electric motor is essential to obtain maximum productivity and service life. Low voltage and amperage levels will cause the motor to overheat. The motor is equipped with an automatic thermal protection device that will stop it before major internal damage can result. After the motor has cooled to an acceptable temperature level, the switch must be manually activated to restart. FIGURE 14.



FIGURE 14.

6) The Floor Grinder utilizes a factory supplied extension cord equipped with an integral GFI device. The GFI device is intended to protect both the operator and electric motor in the event a ground fault is developed during operation. The extension cord is 37 foot (11 m) long, fabricated from 12 AWG wire and incorporates a NEMA 5-15P plug and a NEMA L5-15R twist lock receptacle. The twist lock feature allows the extension cord to be pulled by the Floor Grinder without becoming disconnected.

## WARNING

**BEFORE USE, PROPERLY INSPECT THE EXTENSION CORD AND WIRING DEVICES FOR STRUCTURAL INTEGRITY. DO NOT UTILIZE A CORD WITH A WORN OR CUT OUTER JACKET MATERIAL. DO NOT UTILIZE A CORD THAT HAS BEEN REPAIRED WITH ELECTRICAL TAPE. DO NOT UTILIZE A CORD WITH A CRACKED AND/OR DAMAGED GFI CASE. USE OF AN EXTENSION CORD OF IMPROPER STRUCTURAL INTEGRITY AND/OR DAMAGED GFI CAN RESULT IN PROPERTY DAMAGE AND/OR PERSONAL INJURY.**

## WARNING

**ALL ELECTRICAL WIRING, INCLUDING EXTENSION CORD GAUGE WIRE SIZE AND/OR LENGTH, MUST BE INSTALLED AND/OR APPROVED IN ACCORDANCE TO LOCAL ELECTRICAL CODES AND PRACTICES. AN IMPROPER WIRING INSTALLATION CAN RESULT IN PROPERTY DAMAGE AND/OR PERSONAL INJURY.**

7) Determine that the power source receptacle to be utilized is properly grounded. This can be accomplished with proper testing equipment and procedures. If there are any questions regarding the suitability of a specific power receptacle, contact your dealer or our Customer Service Department for assistance BEFORE utilizing the Floor Grinder. There is no charge for this service.

8) If additional extension cord length is required for a specific job application, an additional extension cord can be utilized in conjunction with an external GFI. Plug the receptacle of the additional extension cord into the factory supplied GFI. Plug the ground fault circuit interrupter into a separate power source receptacle. Connect the extension cord plug into the external GFI. This configuration will allow any fault over

the length of a defective extension cord to be indicated. Extension cord gauge size and length must conform to National Electric Code standards.

## WARNING

**FOR MAXIMUM PROTECTION AGAINST A FAULT, ALWAYS CONFIGURE A GROUND FAULT CIRCUIT INTERRUPTER TO BE PLUGGED INTO THE POWER SOURCE RECEPTACLE. A CONFIGURATION WITH THE GROUND FAULT CIRCUIT INTERRUPTER PLACED BETWEEN THE FLOOR GRINDER AND THE POWER SOURCE RECEPTACLE WILL NOT AFFORD MAXIMUM PROTECTION AGAINST A POTENTIAL FAULT.**

9) Couple the NEMA L5-15R receptacle of the factory supplied extension cord and the NEMA L5-15P plug located on the Floor Grinder together. Twist to lock. FIGURE 15. Connect the GFI to the power source receptacle. Determine that the reset switch is in its proper position to activate the GFI.



FIGURE 15

10) Place the ON/OFF master switch located on the operator handle to the ON position. FIGURE 16.



FIGURE 16

11) Grasp the operator handle with firm grip;ping. When starting the electric motor, apply a down force directly to the operator handle to help reduce the amount of machine weight against the work surface. Rotate the starter control grip with the right hand to start the electric motor. Reduce the amount of applied down force on the operator handle as the electric motor attains its operational speed. The electric motor will require additional time to help compensate for the additional starting amperage required.

## WARNING

**ASSOON AS THE ELECTRIC MOTOR HAS STARTED, THE OPERATOR MUST BE IN A POSITION TO ASSUME DIRECT AND FULL CONTROL OF THE FLOOR GRINDER. FAILURE TO ASSUME DIRECT AND FULL CONTROL CAN RESULT IN PROPERTY DAMAGE AND/OR PERSONAL INJURY.**

12) The Floor Grinder is stopped by rotating or releasing the starter control grip with the right hand to the OFF position. When not in use, turn the ON/OFF master switch to the OFF position.

### OPERATING THE FLOOR GRINDER ON THE JOB SITE

**Application: SG87SH SURFACE SHARK**

## WARNING

**THE GRINDING PROCESS PRODUCES EXCESSIVE NOISE, VIBRATION AND FLYING DEBRIS. ALL OPERATORS AND WORK PERSONNEL IN THE**

**VICINITY OF THE FLOOR GRINDER MUST WEAR APPROPRIATE SAFETY EYE WEAR AND HEARING PROTECTION DEVICES. OTHER SAFETY APPAREL AND/OR PROCEDURES, DEEMED NECESSARY BY SUPERVISORY PERSONNEL MUST ALSO BE WORN AND/OR PRACTICED BY ALL APPROPRIATE PERSONNEL.**

## WARNING

**EXERCISE EXTREME CAUTION WHEN OPERATING THE FLOOR GRINDER IN THE VICINITY OF DECK INSERTS, PIPES, COLUMNS, OPENINGS, LARGE CRACKS, UTILITY OUTLETS OR ANY OBJECT PROTRUDING FROM THE SURFACE. CONTACT WITH SUCH OBJECTS CAN LEAD TO LOSS OF MACHINE CONTROL, RESULTING IN PROPERTY DAMAGE AND/OR PERSONAL INJURY.**

1) The Floor Grinder incorporates a single rotating disc for mounting a wide variety of multi-accessory attachments.

2) The single disc of the SG87SH Floor Grinder rotates in a clockwise direction as viewed by the operator. This action produces a torque effect that, during operation, is counteracted by both the wheels and operator. Reaction to the torque effect will attempt to move the Floor Grinder in a counterclockwise direction. Proper operator position can reduce the amount of torque effect experienced by the operator. Assume a position that allow exercising reactive “body english” against the torque effect created by the specific process. Keep upper arms as close to the upper body as possible to maximize mechanical leverage. An operator should position his back as vertical as possible by bending the legs as required. Positioning the left foot ahead of the right foot at a comfortable distance will enhance proper body position. Maintaining proper operating position is one of the most IMPORTANT and EFFECTIVE procedures for controlling the torque effect. Improper operating positions only aggravate the effects of the torque effect upon the operator. FIGURE 17 depicts a proper operator position. FIGURE 18 depicts an improper operator position.

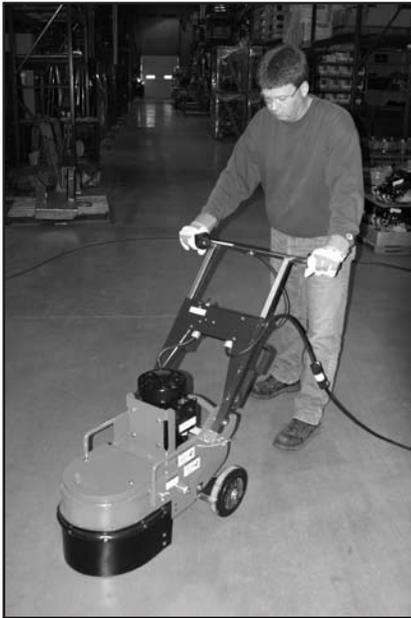


FIGURE 17



FIGURE 18

## DANGER

Maintain the operator handle and motor control handle grip areas in good condition and free of moisture, pitch, oil or grease. Wear gloves to improve your grip. Bent and damaged handles, a motor control with damaged or no grip aggravate the torque effect upon the operator by limiting control and comfort. Do not operate the Floor

Grinder until such damage has been repaired and/or replaced. Damage to property and/or personal injury can result.

4) A multi-accessory attachment that comes in direct contact with a protruding obstruction from the floor can result in unexpected, rapid and jerky directional movement of the machine. In most operating situations, direct contact with a protruding obstruction from the floor will result in the multi-accessory attachment becoming dislodged from the aluminum disc. This occurrence is intended to protect the Floor Grinder from excessive damage and allow the operator to remain in proper control of the machine.

## WARNING

ALWAYS MAINTAIN PROPER CONTROL OF THE FLOOR GRINDER. IF AN OPERATOR LOOSES CONTROL OF THE MACHINE, A “RUNAWAY” FLOOR GRINDER CAN RESULT IN PROPERTY DAMAGE AND/OR PERSONAL INJURY. THE ELECTRIC MOTOR IS INTENDED TO AUTOMATICALLY STOP IF THE OPERATOR FAILS TO MAINTAIN PROPER CONTROL AND RELEASES THE STARTER CONTROL GRIP.

## DANGER

WHEN OPERATING THE FLOOR GRINDER ON ABOVE GROUND FLOOR LEVELS, EXERCISE EXTREME CAUTION TO PREVENT LOSS OF CONTROL THAT COULD ALLOW THE MACHINE AND/OR OPERATOR TO FALL DOWN TO LOWER LEVELS. SUCH AN OCCURRENCE CAN RESULT IN PROPERTY DAMAGE AND/OR PERSONAL INJURY.

5) Productivity rates with the various multi-accessory attachments can be increased with the addition of external weight being applied to the area over the aluminum disc. The maximum allowable external weight for the SG87SH is 150 lbs (68 kg). Exceeding this figure can result in permanent structural damage to the Floor Grinder. Provisions for securing the weight by the means of strapping or other, appropriate methods is provided. FIGURE 19.



FIGURE 19

## WARNING

**DO NOT OPERATE THE FLOOR GRINDER WITHOUT ALL EXTERNAL WEIGHT PROPERLY SECURED TO THE MAIN FRAME. A SUDDEN CHANGE IN MOVEMENT OR DIRECTION CAN ALLOW THE UNSECURED WEIGHT TO FALL OFF THE FLOOR GRINDER, RESULTING IN LOSS OF MACHINE CONTROL, PROPERTY DAMAGE AND/ OR PERSONAL INJURY. THIS PROCEDURE IS ESPECIALLY IMPORTANT WHEN OPERATING THE FLOOR GRINDER ON FLOORS AND/OR SURFACES ABOVE GROUND LEVEL.**

6) The wide variety of potential work surface materials along with the corresponding variety of job site environments, makes it impossible to develop a standardized operating procedure for the Floor Grinder. Use of the Floor Grinder will require constant trial and error testing until satisfactory results are achieved. Experience gained over time and common sense will help minimize the amount of necessary testing. Many factors will directly affect the operating parameters and/ or techniques utilized for a specialized job application. Some of these factors include:

a) Work surface material yield and tensile values. As a general rule, these values will determine material removal rates per unit of time. Materials with high yield and tensile values will characteristically resist/ limit material penetration. For such materials, the accepted procedure is to make a number of multiple passes over the work surface rather than attempt to make a single, deep pass. The net effect is to actually increase productivity: more material removed in less time. Other added benefits to this technique are decreased vibration, less operator fatigue and increased component service life.

b) Higher material removal rates can sometimes be achieved by making a series of shallow passes 90 degrees to each other to form a waffle like pattern. This technique is especially useful when removing thicker accumulations of rubber, paint, dirt debris, etc. from industrial floors.

7) The grinding process on many work surface materials can produce sparks, dust and other foreign particle contamination.

## WARNING

**SPARKS PRODUCED BY THE ACTIONS OF MULTI-ACCESSORY OPTIONS AGAINST THE WORK SURFACE (FOR EXAMPLE: STRIKING ANCHOR BOLTS) MAY COME IN CONTACT WITH MATERIALS THAT CAN RESULT IN A FIRE AND/OR EXPLOSION. THIS OCCURRENCE CAN RESULT IN PROPERTY DAMAGE AND/OR PERSONAL INJURY.**

## WARNING

**THE CREATION OF DUST AND OTHER FOREIGN PARTICLE CONTAMINATION FROM THE OPERATIONAL PROCESS CAN RESULT IN PROPERTY DAMAGE AND/OR PERSONAL INJURY. FOR SUCH OPERATING CONDITIONS, ALWAYS WEAR A NIOSH/MSHA APPROVED DUST/MIST RESPIRATOR. CONSULT APPLICABLE OSHA REGULATIONS FOR SPECIFIC INFORMATION.**

8) Dust and other particle contamination can be controlled by the following methods:

a) The Floor Grinder is equipped with a 3 inch (76 mm) outside diameter vacuum tube adapter located at the rear of the machine. An industrial type vacuum system and front shield assembly can be attached to the Floor Grinder to remove/control dust and other particle contamination from the work surface. A hose clamp is sometimes required to properly secure the vacuum hose to the vacuum tube. FIGURE 20.



FIGURE 20

## **WARNING**

**ALWAYS UTILIZE A VACUUM SYSTEM DESIGNED TO OPERATE WITHIN THE SPECIFIC JOB SITE REQUIREMENT. DUST MATERIAL CAN MEET CLASS II OR CLASS III SPECIFICATIONS OF THE NATIONAL ELECTRIC CODE® FOR HAZARDOUS LOCATION CLASSIFICATIONS. CONSIDERATION MUST ALSO BE GIVEN TO THE CREATION OF HAZARDOUS TYPE MATERIALS REQUIRING SPECIFIC DISPOSAL PROCEDURES. DETERMINE THAT THE VACUUM SYSTEM IS PROPERLY DESIGNED TO OPERATE WITHIN THESE ATMOSPHERES. CONSULT CURRENT NATIONAL ELECTRIC CODE®, OSHA AND ENVIRONMENTAL PROTECTION AGENCY REGULATIONS FOR SPECIFIC INFORMATION.**

b) Water/sand slurry mixture applied directly to the work surface can be an effective method of reducing the effects of grinding and other material removal processes. This method can be a productive alternative when removing adhesives containing asbestos. A negative effect of this method is that the water/sand slurry mixture can be classified as a hazardous material, requiring proper disposal procedures.

9) Normal usage of the Floor Grinder will allow the build-up and accumulation of work surface materials on interior surfaces. It is highly recommended that both the interior and exterior surfaces be properly cleaned after the completion of each usage.

## **CAUTION**

**Failure to properly clean the interior surfaces of the Floor Grinder can result in dried material build-up and accumulation directly affecting bearing service life.**

## **DANGER**

**EXERCISE EXTREME CAUTION WHEN UTILIZING ANY SOLVENT TO REMOVE ACCUMULATED MATERIALS FROM THE SURFACES OF THE MACHINE AND RELATED COMPONENTS. MANY SOLVENTS ARE FLAMMABLE. DO NOT SMOKE OR INTRODUCE FLAME IN THE WORK AREA. PROVIDE ADEQUATE VENTILATION AND WEAR PROPER SAFETY APPAREL.**

## **WARNING**

**PROPERLY DISPOSE OF ALL ACCUMULATED MATERIALS PER OSHA AND ENVIRONMENTAL PROTECTION AGENCY CODES AND REGULATIONS. MANY ACCUMULATED MATERIALS CAN BE CLASSIFIED AS HAZARDOUS AND REQUIRE PROPER DISPOSAL PROCEDURES. CONTACT THE APPLICABLE GOVERNMENT AND/OR PRIVATE AGENCIES FOR SPECIFIC INFORMATION.**

10) On job applications where the work process creates a considerable amount of loose material, it can become almost impossible to determine proper material removal depths and the extent of work already accomplished. The problem can be compounded if a vacuum system is not utilized. Loose material should be removed by sweeping or other, appropriate processes and the Floor Grinder utilized until conditions again warrant removing the accumulated material.

## **STOPPING THE SURFACE GRINDER**

### **Application: SG87SH SURFACE SHARK**

The SG87SH Floor Grinder is stopped by rotating or releasing the starter control grip with the right hand to the OFF position. When not in use, turn the ON/OFF master switch to the OFF position.

## **OPERATIONAL PARAMETERS AND TECHNIQUES FOR THE FLOOR GRINDER**

### **Application: SG87SH SURFACE SHARK**

#### **Early Age Grinding**

Early age grinding is an alternative to floating and troweling. It gets its name from the fact that the concrete is ground at an early age, after it has set but before it has gained much structural strength. The process usually involves the following steps:

- 1) Normal screeding of the floor.
- 2) Smoothing the floor surface with a skip float.
- 3) Cover the floor with polyethane sheeting.
- 4) Removing the sheeting and grinding the floor down a uniform depth of approximately 1/32 inch within 24 to 48 hours of the initial pouring. The C-10 silicon carbide grinding stones are usually used for the process, although the multi segmented, dry diamond blades can be used as an alternative with substantially greater productivity rates. The main benefit of early age grinding is that it eliminates late work in cold weather. With ordinary finishing methods, a slab cast in the morning of a cold weather day might not get finished troweled until very late at night. With grinding, the construction crew is able to leave the job at the end of a normal work day and return 1 or 2 days later to finish the job. Early age grinding may not reduce the total number of work hours, but it usually eliminates the need for work at overtime rates, which can substantially increase total project costs.

One side benefit of early age grinding is that the process demands less skill than conventional floating and troweling. This makes it an attractive process where skilled crew personnel may not be available. It is also an excellent procedure for concrete floors that will be eventually covered by carpet or an applied coating.

## **Definitions of Floor Flatness and Levelness.**

The terms flatness and levelness have poorly understood meanings in everyday speech, but have important distinctions in floor construction.

Flatness is defined as planarity or lack of curvature. A more simple definition is that a flat floor is smooth and free of bumps and dips. An unflat floor is bumpy and wavy. Levelness is defined as horizontality or lack of slope. A level floor is horizontal. A floor that is unlevel is sloped or tilted.

A floor can be flat, but still not level. Some floors are specifically designed to be unlevel; they can be intentionally sloped for drainage considerations. Very few, if any, floors are specifically designed to be unflat. Unfortunately, many turn out that way. Flatness and levelness are both desirable, but have different implications for the floor user. Flatness is critical where the user's main concern is the behavior of wheeled type vehicles. Levelness is critical where the user's main concern is with fixed structures such as shelving, racks and the placement of machine tools.

Exceptions exist, but for most users, flatness is more important than levelness. The reasoning is that fixed equipment can be shimmed or adjusted to compensate. However, it is not as easy to adapt a wheeled vehicle to a floor that is not flat enough to allow for proper action.

Flatness and levelness also have different implications for the floor contractor. Flatness is determined mainly by finishing methods. Levelness is determined mainly by the side forms.

## **Defined Versus Random Traffic Patterns.**

Floors are subject to two kinds of traffic patterns: defined and random. On a defined traffic floor, vehicle movement is confined to fixed paths. On a random traffic floor, vehicles are free to roam, though inevitably, some traffic patterns are used more than others.

The distinction is important because the two kinds of traffic demand different methods of measuring surface regularity. On a defined traffic floor, a continuous (or nearly continuous) profile in each of the paths can be measured. But where traffic is random, the possible travel paths are infinite in number. What usually results is statistical sampling; selected points or lines are checked and assumed that they represent the whole floor surface.

The highest degree of surface regularity is found among the defined traffic floors. Defined traffic floors allow the designer and contractor to focus on a limited number of critical areas. When a defined traffic floor is out of tolerance, it is relatively easy to identify the defects for correction---usually by employing a grinding process.

**How to Define Surface Regularity.**

Since the middle 1980s, new methods of defining surface regularity have been adopted as national standards. Older methods will continue to be utilized, although they are less effective. The following methods will be discussed:

- 1) The F number system for random traffic floors
- 2) The TR34 system for defined traffic floors

Both methods are not of equal value. For random traffic floors, F numbers provide the most complete and consistent system. For defined traffic floors, the TR34 system is superior.

The F number system utilizes a pair of numbers to define surface regularity. The flatness number, OFF, is based upon the curvature over a horizontal distance of 24 inches. The levelness number, FI, is based upon the floor slope over a horizontal distance of 10 feet. The standard test for F numbers is specified in ASTM E1155 and/or most recent version. With both OFF and FI, higher numbers mean greater surface regularity. Though the scale ranges from zero to infinity, almost all floors have F numbers between 10 and 100 for both flatness and levelness. Since the scale is linear, an OFF50 floor is exactly twice as flat as an OFF25 floor.

Most F number specifications are written in a two tier format. The overall F numbers apply to the floor taken as a whole. The local F numbers apply to each individual slab and are usually only one half to two thirds the overall values.

The overall F numbers are not just simple averages. ASTM E1155 covers how to combine F numbers.

The two tier format encourages contractors to achieve good surface regularity while allowing for minor defects. The attempt is to pour the entire floor to the specified overall F numbers. If, for instance, the construction crew has a bad day and fails to meet the specified overall numbers for the slab, the slab can still be accepted provided it meets the specified local numbers. Such an occurrence serves as a warning to the crew that it must strive for a better performance on later slabs, so

as to bring the overall F numbers up to the specified values. If a slab fails to meet even the specified local numbers, it must be repaired or replaced, but such failures seldom occur if all parties understand what is expected from the start.

Designers are not obligated to use this two tier format. Some designers specify a single F number pair (OFF and FI) which applies to each individual slab. But this also raises the risk that slabs will be rejected.

FIGURE 21 depicts the overall and minimum F numbers for various floor classes. The floor classification is from the American Concrete Institute. Although the F number system is only a few years old, it offers these advantages:

- a) The system controls both flatness and levelness.
- b) There is a standard test method.
- c) The system recognizes the statistical nature of profile testing on random traffic floors.
- d) The system is infinitely variable.

**F<sub>F</sub>/F<sub>L</sub> Classifications  
set forth by ASTM E1155**

FLOOR PROFILE QUALITY CLASSIFICATION	MINIMUM F <sub>F</sub> /F <sub>L</sub> NUMBER REQUIRED			
	SPECIFIED F NUMBERS		MINIMUM LOCAL F NUMBERS	
	FLATNESS F <sub>F</sub>	LEVEL F <sub>L</sub>	FLATNESS F <sub>F</sub>	LEVEL F <sub>L</sub>
CONVENTIONAL BULL-FLOAT STRAIGHTEDGE	15	13	13	10
FLAT	30	20	15	10
VERY FLAT	50	30	25	15

FIGURE 21

One of the major limitations of the F number system is that it does not control the surface regularity at joints. Because joints are statistical anomalies, the standard test method forbids measurements within 24 inches. The designer specifying by F number has two methods to accommodate the problem. The first solution is to locate joints at locations where surface regularity is not important. The second solution is to design specifications for the joints themselves.

## **The TR 34 Tolerances for Defined Traffic Floors.**

The TR 34 System divides defined traffic floors into three categories:

- a) Superflat
- b) Category 1
- c) Category 2

For each category, the TR 34 System specifies limits for three properties:

Property 1 is the difference in elevation between two points 12 inches apart, measured in the direction of vehicle traffic. This is the levelness tolerance.

Property 2 is the difference in slope over 24 inches measured in the direction of vehicle traffic. This is the flatness tolerance. It is identical as the 24 inch curvature utilized in the F number system.

Property 3 is the difference in elevation between opposite points in the left and right wheel path, measured perpendicular to the direction of vehicle traffic. As with Property 1, it is a levelness tolerance.

The TR 34 System specifies different values for Property 3 depending upon whether the distance between left and right wheel paths is more or less than 5 nominal feet.

The Superflat category is intended for very narrow aisle warehouses where the highest standards are required. Category 1 is suggested for very narrow aisle warehouses where the vertical lift height is between 26 and 43 feet. Category 2 is for very narrow aisle warehouses where the vertical lift height is under 26 feet and the use of low rise, automatically controlled vehicles. No matter which category of surface regularity is specified, it is accomplished by measuring elevations on 12 inch centers. This is very similar to an F number survey, but with an important distinction. In an F number survey, the elevation profiles are made on the floor at random. With the TR 34 System, the survey measurements are made on the actual paths of the vehicles that will utilize the floor.

## **Improving the Wear Resistance of Concrete Floors by Grinding with the Floor Grinder.**

Poor wear resistance can often be traced back to a surface that is weaker than underlying levels of the pour. This occurrence can result from bad finishing techniques, improper curing or early freezing.

Where surface weakness is a problem, grinding can be a solution. The process is similar to the early age technique. The grinding depth is typically 1/16 to 1/8 inch. A large project should not be attempted until a small test area has proven that the technique will produce the desired results. Usually only a square yard of floor is ground with the normal wear tests performed.

Repair costs can be minimized by grinding only those floor areas that accommodate traffic. For example, in a pallet rack warehouse, it may be necessary to grind only the aisle areas and not under any of the racks. The grinding process can adversely affect the surface regularity. Where specific properties are important, it may be necessary to survey the floor during the grinding process to ensure that flatness and levelness specifications are maintained.

## **Cleaning Concrete Floors to Improve the Wear Resistance with Floor Grinder.**

Clean concrete floors have a longer service life than dirty, poorly maintained floors. Loose debris produces three-bodied wear by allowing particles to roll between the traffic and the floor surface. With some types of debris, especially when lodged in vehicle wheels, wear can be immediate and severe.

The Floor Grinder can be utilized with a number of multi accessories to clean and extend concrete floor service life. The SHARK TOOTH floor coatings removal system readily removes food, oil and rubber accumulations from high traffic floor areas.

# **SERVICE**

## **PREVENTATIVE MAINTENANCE CHECK LIST**

### **Application: SG87SH SURFACE SHARK**

The normal operation of the Floor Grinder produces extreme dirt and dust, along with levels of random vibration. Before operating the Floor Grinder, the following service list should be accomplished. This list is for reference only and is not intended to be all inclusive. Other subject areas can be added at the discretion of the owner(s) and/or operator(s)

- 1) Disconnect the Floor Grinder from the extension cord or power source BEFORE performing any service related work.
- 2) Check all fasteners for proper torque values. If a fastener requires retorquing, consult a torque chart for proper value. Properly discard and replace any worn fastener with a factory approved, replacement part only.
- 3) Check the V-belt for wear. Adjust or replace as necessary. Check pulleys for wear and proper alignment. Many loose materials created as a result of operating processes can be extremely abrasive.
- 4) Keep the Floor Grinder clean. Wash the unit after each use. Keep loose materials from accumulating around motor cooling fan and intake area. Determine that the interior sections of the frame are free of material build-ups. Such build-ups can restrict the operating process and present a potential safety hazard. Clean and remove any material build-up from the Floor Grinder after each use.
- 5) Remove material accumulations from the exterior surfaces of the electric motor. The electric motor is a totally enclosed, fan cooled (TEFC) design. Keep the fan fins clear of material accumulations to enhance air flow over the motor exterior for cooling purposes.



## **WARNING**

**DONOT PERFORM PREVENTATIVE MAINTENANCE CHECKS WITH THE ELECTRIC MOTOR RUNNING. STOP THE MOTOR AND DISCONNECT THE EXTENSION CORD BEFORE PERFORMING ANY MAINTENANCE TO THE FLOOR GRINDER. IF ELECTRIC MOTOR EQUIPPED, TURN THE ON/OFF MASTER SWITCH TO THE OFF POSITION**

**BEFORE RECONNECTING THE EXTENSION CORD. IMPROPER PROCEDURES CAN RESULT IN PROPERTY DAMAGE AND/OR PERSONAL INJURY.**

## **CHECKING V-BELT TENSION AND ALIGNMENT**

### **Application: SG87SH SURFACE SHARK**

Proper V-belt tension and alignment are essential for smooth transmission of horsepower and extended service life. Improper tension and alignment will accelerate V-belt wear and contribute to decreased productivity. The V-belt is tensioned at the factory with the maximum recommended force. Check the belt tension at least two times during the first day of operation as there will normally be a decrease in belt tension until it has been run in. Check the belt tension every eight hours of operation thereafter and maintain tension within the recommended range. The correct operating tension for a V-belt drive is the lowest tension at which it will not slip under peak load conditions.

Tools Required:

- 1 each, 16 inch minimum length straightedge
- 1 each, 10 lbs minimum capacity, tension scale or belt tension tool.

- 1) Disconnect the Floor Grinder from the extension cord or power source BEFORE performing any service related work.
- 2) Position the Floor Grinder on a suitable work bench with the V-belts approximately at waist level.
- 3) Remove the wing-type nuts that secure the external weight/belt guard.
- 4) While gripping the cutout in the external weight, slide the weight/belt guard away from the electric motor approximately 1 inch. This will release the cover from the forward catch mechanism.
- 5) Remove the weight/belt guard from the main frame. Clean the inside of the belt guard with an appropriate solvent. Store in an appropriate location.



## **CAUTION**

**Observe all applicable safety precautions for the solvent.**

6) Check the belt tension using the spring scale or belt tension tool midway between the two pulleys. Belt tension should measure approximately 0.22 inch at 3-1/4 to 4-3/8 lbs measured force range. FIGURE 22. If tension is within specifications, proceed to Step 7. If tension is not within specifications, refer to **INSTALLING A REPLACEMENT V-BELT OR PULLEY** for specific information.

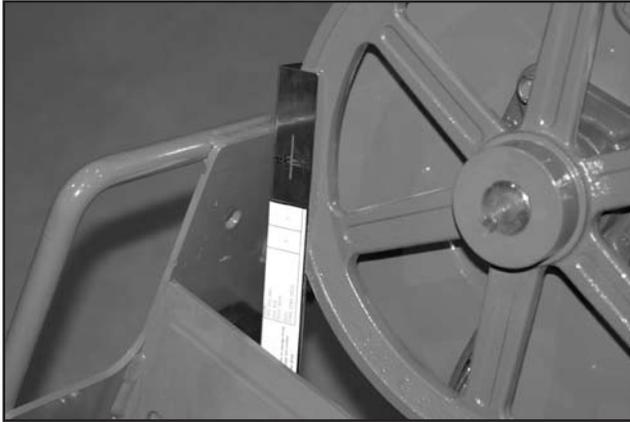


FIGURE 22

7) Belt alignment is checked with the straightedge. Place the straightedge squarely against the transmission pulley. Properly aligned pulleys should also place the straightedge squarely against the motor pulley. Remove the straightedge and rotate the motor pulley 120 degrees. Recheck the alignment with the straightedge. Repeat the process until the motor pulley is rotated a full 360 degrees. Maximum allowable misalignment is  $\pm 1/32$  inch. If pulley alignment is not within specifications, refer to **INSTALLING A REPLACEMENT V-BELT OR PULLEY** for specific information. FIGURE 23.



FIGURE 23

8) Install the weight/belt cover to the main frame and secure with the wing-type nuts. Determine that all safety related decals affixed to the weight/belt guard are fully readable. If any decal is not fully readable, replace with a factory approved, replacement part only.

9) If the machine is to be used immediately, determine the master switch located on the operator handle is in the OFF position and that the starter control grip is in the OFF position before reconnecting the Floor Grinder to the power source.

## **WARNING**

**UNEXPECTED MACHINE START UP CAN RESULT IN PROPERTY DAMAGE AND/OR PERSONAL INJURY.**

### **INSTALLING A REPLACEMENT V-BELT OR PULLEY**

#### **Application: SG87SH SURFACE SHARK**

##### Tools Required:

- 1 each, 9/16 inch wrench.
- 1 each, 9/16 inch socket with long extension and ratchet.
- 1 each, 5/32 inch Allen wrench.
- 1 each, 16 inch minimum length straightedge.
- 1 each, 10 lbs minimum capacity, tension scale or belt tension tool.

##### Parts required:

- 1 each, Part# MB45 V-belt.
- 1 each, Part# MSG87SH-0410 Pulley Assembly (if required).
- 1 each, Part# MSG87SH-0400 Pulley Assembly (if required).

1) Disconnect the Floor Grinder from the extension cord or power source **BEFORE** performing any service related work.

2) Position the Floor Grinder on a suitable work surface with the V-belt approximately at waist level.

3) Remove the wing-type nuts that secure the external weight/belt guard.

4) While gripping the cutout in the external weight, slide the weight/belt guard away from the electric motor approximately 1 inch. This will release the cover from the forward catch mechanism.

5) Remove the weight/belt guard from the main frame. Clean the inside of the belt guard with an appropriate solvent. Store in an appropriate location.

## CAUTION

Observe all applicable safety precautions for the solvent.

6) Using the ratchet, long extension and 9/16 socket, loosen the hexagon nuts that retain the electric motor mounting plate to the main frame. FIGURE 24.

7) Using the 9/16 inch wrench, loosen the 3/8 inch hexagon jam nuts from the motor mounting plate. FIGURE 25.

8) With the ratchet and 9/16 inch socket, rotate the mounting plate take-up screws counterclockwise to loosen the V-belt and allow the electric motor to slide forward toward the front of the main frame. FIGURE 25.

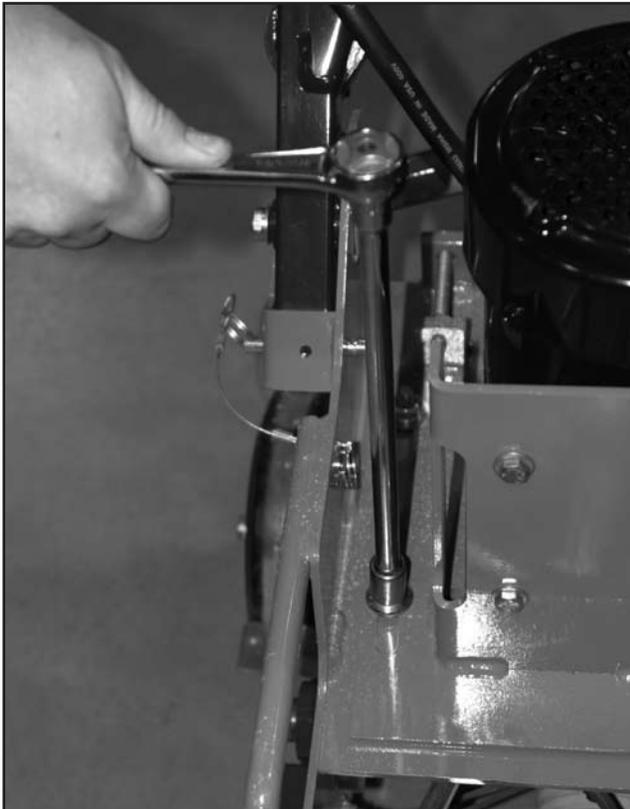


FIGURE 24



FIGURE 25

9) Remove the worn V-belt from the pulleys. Inspect the electric motor and transmission pulleys for wear and damage.

a) Do not install a replacement V-belt if any pulley has an excessively worn groove. Such a pulley should be replaced with a factory approved replacement part to insure proper belt fit. Operating a replacement V-belt in a worn pulley groove will accelerate wear, reduce horsepower and torque levels while significantly reducing component service life.

b) If a replacement pulley is required, remove and reinstall with a factory approved replacement part. Refer to **CHECKING V-BELT TENSION AND ALIGNMENT** for information relative to maintaining proper V-belt tension and pulley alignment.

c) A V-belt should never be forced over a pulley. More belts are broken from this cause than from actual failure in service.

d) Install the replacement V-belt, Part# MB45.

e) Keep the belt as clean and free of foreign materials as possible. Do not use belt dressing.

10) Using the ratchet and 9/16 inch socket, rotate the motor mount take-up screws clockwise until the V-belt has enough tension to not allow it to fall off the pulleys.

11) Refer to **CHECKING V-BELT TENSION AND ALIGNMENT** for information relative to maintaining proper V-belt tension and pulley alignment.

12) When correct V-belt tension and pulley alignment is attained, tighten the hexagon nuts that retain the motor mount to the main frame.

13) Install the weight/belt cover to the main frame and secure with the wing-type nuts. Determine that all safety related decals affixed to the weight/belt guard are fully readable. If any decal is not fully readable, replace with a factory approved, replacement part only.

13) If the machine is to be used immediately, determine the master switch located on the operator handle is in the OFF position and that the starter control grip is in the OFF position before reconnecting the Floor Grinder to the power source.

### **REPLACING THE LORD® TYPE ELASTOMERIC MOUNTS ON THE MULTI-ACCESSORY DISC**

#### **Application: SG87SH SURFACE SHARK**

Lord® type elastomeric rubber mounts are utilized to allow each multi-accessory disc to maintain full contact with the work surface. The rubber mounts afford a constant flex rate for the multi-accessory disc throughout its service life. The rubber compound is resistive to the effects of ultraviolet radiation and most common chemicals encountered when operating the Floor Grinder .

During the manufacturing process, the rubber mounts are pressed into specially machined cavities in the disc mounting plate. Under normal usage and job applications, the Lord® type rubber mounts will deliver appropriate performance for the expected service life of the Floor Grinder. However, an attachment mounted in the multi-accessory disc that directly strikes a vertical floor obstruction with sufficient impact force can cause one or more of the mounts to become separated from the mounting plate. This occurrence will not allow the multi-accessory disc to maintain full contact with the work surface. This occurrence is also intended to protect the V-belt and bearings from costly damage and the operator from an impact force that could cause personal injury.

#### **Tools Required:**

- 1 each, 5/16 Allen wrench.
- 2 each, 5/8 wrenches.
- 1 each, arbor press of sufficient capacity and stability.
- 1 each, suitable length of 3/4 inch diameter steel rod.
- 1 each, suitable section of 1-1/2 inch inside diameter steel tubing.

#### **Parts Required:**

- Part# MJ-6250-2 Elastomeric Mount (as required).
- 1 container each: Part# M80 Installation Lubricant (or approved equivalent).

1) Disconnect the Floor Grinder from the extension cord or power source BEFORE performing any service related work.

2) Position the Floor Grinder on a suitable work surface with the multi-accessory disc at a comfortable level.

3) Remove the wing-type nuts from the main frame. While gripping the cutout in the external weight, slide the weight/belt guard away from the electric motor approximately 1 inch. This will release the cover from the forward catch mechanism. Remove the weight/belt guard from the main frame. Clean the inside of the belt guard with an appropriate safety solvent. Check for signs of wear and damage. Secure in a proper storage area.



## **CAUTION**

**Observe all applicable safety precautions for the solvent.**

4) Tilt the Floor Grinder back until the operator handle comes in contact with the surface. The Floor Grinder may not be in a stable position in this configuration. To minimize the possibility of property damage and/or personal injury, apply an appropriate weight to the handle to stabilize the Floor Grinder. FIGURE 26. Other means can also be utilized to support the frame and provide proper machine stability. Appropriate wheel chocks are recommended. Follow the instructions for this procedure as outlined in **INSTALLING A MULTI-ACCESSORY ATTACHMENT IN THE ALUMINUM DISC.**

5) Utilizing the Allen wrench, remove the aluminum multi-accessory disc (if still attached) from the Floor Grinder.

6) Utilizing the 9/16 inch wrenches, remove the cap screws that retain the Lord® rubber mounts to both the mounting plate and transmission shaft.

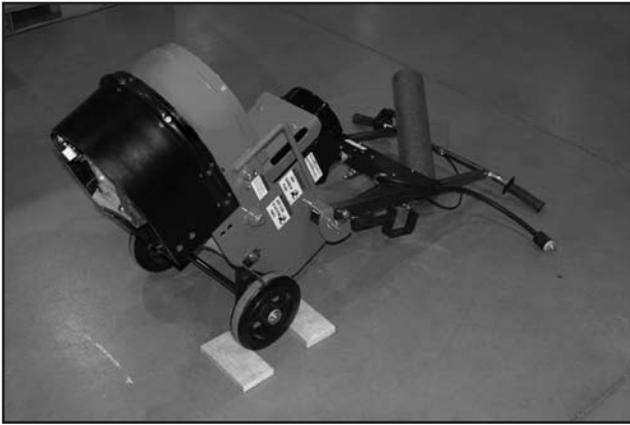


FIGURE 26

7) Inspect the appropriate cavities in the mounting plate for wear and damage. Any nick or burr must be removed by the use of an appropriate file, followed by the use of 240 grit sandpaper. FIGURE 27.



FIGURE 27

8) Apply the installation lubricant to the exterior surface of the elastomeric mount to minimize damage when pressing into the mounting disc. If the factory supplied lubricant is not available, an acceptable alternative is the use of common liquid soap.

## CAUTION

**Do not install an elastomeric mount without the use of an approved lubricant. Installation without an approved lubricant can produce tears in the mount, resulting in substandard operational performance and service life.**

9) Support the elastomeric mount, 3/4 inch diameter steel rod and mounting plate as depicted in FIGURE 28. The section of 3/4 inch diameter steel rod is utilized

to thrust directly against the mount. The mounting plate must be suspended from the arbor press to allow the mount to clear when the pressing process is completed. The section of 1-1/2 inch inside diameter steel tubing can be utilized for this purpose. Center all components on the mounting plate. Using the arbor press, apply a steady force in a straightline direction to the mount until it fully penetrates the cavity in the mounting disc. Do not attempt to push the elastomeric mount through the mounting disc with excessive force. Damage to the elastomeric mount will result.

10) Reassemble the mounting disc to the transmission shaft.

11) Reassemble the mounting plate to the mounting disc.

12) Reassemble the aluminum multi-accessory disc to the mounting plate.

13) Check to determine that the replacement elastomeric mounts allow for proper position of the aluminum multi-accessory disc. If the elastomeric mounts are not properly positioned, they will require removal and reinstallation. The removal process can produce tears and abrasions in the mount that will require a new replacement.

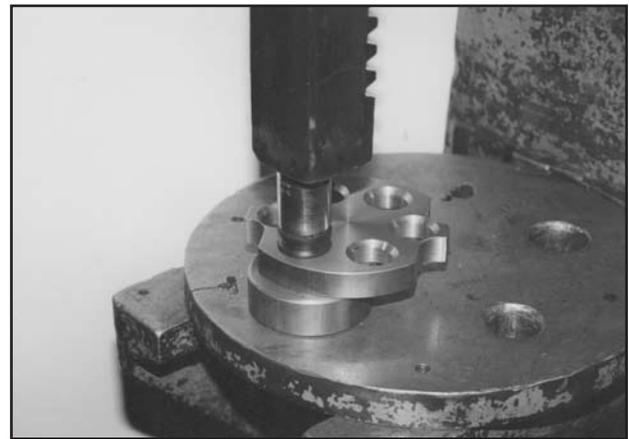


FIGURE 28

## **LUBRICATION REQUIREMENTS**

### **Application: SG87SH SURFACE SHARK**

#### Parts Required:

- 1 each, standard grease gun filled with one of the following: ESSO Beacon 325, Shell Alvania #2, Chevron SRI, or equivalent.
- 1 each, container of dry film lubricant.

1) Lubricate the caster wheel bearings with a dry film lubricant only. Dry film lubricants dry immediately upon contact. Use sparingly. Excess lubricant will attract the fine grained, powdered materials produced during use of the Floor Grinder that can directly affect bearing service life.

## **CAUTION**

**Do not lubricate the caster wheels with any type of grease material. Grease will attract foreign material accumulations that can accelerate bearing wear.**

2) The transmission shaft is supported by extra capacity, ball bearings. Bearing are lubricated at the time of manufacture and do not require additional servicing when placing the unit in initial service. The remote-type, central lubrication system is a convenient method for providing lubrication to bearings. FIGURE29. Zerk grease fittings can promote improper service schedules and an excessive amount of overgreasing. Excess grease escaping from around the bearing insert seals will attract foreign material accumulations that can drastically shorten seal life. Excessive amounts of grease in the bearing race cavity can actually increase friction and resulting heat increases that can also dramatically shorten bearing service life.



FIGURE 29

3) Standard bearing greasing intervals will range from once every 8 hour work day to approximately once every work week. Always maintain sufficient grease around the circumference of the bearing insert to provide its self-aligning feature and prevent the formation of corrosion.

5) Do not apply belt dressing materials to the V-belt for the purpose of minimizing slippage. These products typically attract foreign material accumulations that can accelerate component wear. Excessive V-belt slippage can be eliminated with proper V-belt tension and alignment.

## **ELECTRIC MOTOR SERVICE**

### **Application: SG87SH SURFACE SHARK**

The electric motor is capable of operating for many years with a reasonably small amount of maintenance. Before attempting to service the motor, disconnect the Floor Grinder from the power source. Clean the motor surfaces periodically, preferably with a vacuum cleaner. Heavy accumulations of dirt and dried materials will result in overheating and premature failure of the motor.

The electric motor is equipped with higher capacity ball bearings and under normal service and ambient temperatures, should not require relubrication for many years.

The seals utilized with the motor are intended to deliver a longer service life in a concrete dust environment. When replacing the seals, utilize only components meeting the original factory specifications.

If you feel that the motor requires relubrication, contact the local representative of the motor manufacturer for specific information. Refer to your local Yellow Page listing or website. Additional service can also be obtained from local service centers which are members of the Electrical Apparatus Service Association (EASA).

## **TROUBLESHOOTING**

### **ELECTRIC MOTOR**

#### **Application: SG87SH SURFACE SHARK**

#### **MOTOR FAILS TO START**

ON/OFF switch in the OFF position. Turn the switch to the ON position.

Improper voltage selection. Determine the available voltage value from the power source. Determine the power source voltage meets the nameplate requirements of the electric motor.

Floor Grinder and/or extension cord is not plugged into the power source. Determine that all electrical connections have been properly made. The NEMA 6-20 Series cap and receptacle set is of a twist lock configuration and requires a twist motion to ensure a proper connection.

Improper extension cord size and capacity. Operate the Floor Grinder with copper stranded, 8 AWG or larger extension cords. Improper extension cord size and capacity will result in significant heat rise and corresponding voltage and amperage drop.

Thermal protection device activated. To protect the motor against heat related damage, an automatic thermal protection switch is provided. High operating temperatures will activate the switch and shut the motor off. After the motor has cooled to an acceptable temperature level, depress the switch to restart.

Circuit breaker activated. Push to reactivate the breaker located on the operator handle near the ON/OFF master switch. **MOTOR LOSES POWER**

Improper extension cord size and capacity. Replace with cords meeting the required specifications.

Excessive extension cord length. Even with proper extension cord size and capacity, excessive cord length can reduce the available voltage and amperage to the motor. Measure the available voltage to the motor where the extension cord connects to the Floor Grinder with a voltmeter. Reduce the extension cord length as required to achieve the minimum voltage operating specification as required by the motor manufacturer.

Insufficient available voltage and amperage at the power source. Measure the available voltage at the power source (usually a receptacle) with a voltmeter. If the available voltage is below the minimum operating specification as required by the motor manufacturer, utilize an alternative power source.

Improper motor cooling. See **ELECTRIC MOTOR SERVICE**.

Excessive load to the motor. See **OPERATING THE FLOOR GRINDER ON THE JOB SITE**.

## **OPERATIONAL PROBLEMS**

### **Application: SG87SH SURFACE SHARK**

#### **UNEVEN MULTI-ACCESSORY ATTACHMENT WEAR**

Incorrect installation of the attachment in the aluminum disc. See **INSTALLING A MULTI-ACCESSORY ATTACHMENT (not including the multi-segmented, dry diamond disc) IN THE ALUMINUM DISC**.

Worn or damaged gimbal head Lord® rubber mounts. Replace mounts.

Accumulation of foreign material on the multi-accessory attachment. Clean and/or replace the attachment components as necessary.

Flails and spacer washers are mounted too tight on the scarifier frame. Remove and/or replace flails and spacer washers. See **MULTI-ACCESSORY ATTACHMENTS AND APPLICATIONS**.

#### **EXCESSIVE JUMPING ON THE WORK SURFACE**

Incorrect installation of the attachment in the aluminum counterrotating disc. See **INSTALLING A MULTI- ACCESSORY ATTACHMENT (not including the multi-segmented, dry diamond disc) IN THE ALUMINUM DISC**.

Worn or damaged gimbal head Lord® rubber mounts. Replace mounts.

Loose gimbal head fasteners. Retorque fasteners as required.

#### **ACCELERATED V-BELT WEAR**

Misaligned and/or improperly tensioned pulleys. Readjust pulleys and V-belt. See **CHECKING V-BELT TENSION AND ALIGNMENT**.

Worn pulleys. Replace pulleys as required. See **INSTALLING A REPLACEMENT V-BELT OR PULLEY**.

Improper V-belt. Replace with a name brand B45 series V-belt. See **INSTALLING A REPLACEMENT V-BELT OR PULLEY**.

## ACCELERATED BEARING WEAR AND/OR FAILURE

Misaligned and/or improperly tensioned pulleys. Readjust pulleys and V-belts. See **CHECKING V-BELT TENSION AND ALIGNMENT**.

Bent transmission shaft. Replace shaft.

Improper lubrication. See **LUBRICATION REQUIREMENTS**.

## UNEVEN GRINDING ACTION

Excessive material build-up on the caster wheel face surface. Remove material. Readjust wheel scrapers to properly remove material build-ups.

Excessive caster wheel bearing wear. Replace the caster wheel. Excessive axle wear. Replace axle.

Flails and/or spacer washers are mounted too tight on the scarifier frame. Remove and/or replace flails and spacer washers. See **MULTI-ACCESSORY ATTACHMENTS AND APPLICATIONS**.

Mixing new and worn flails, silicon carbide stones, etc. Remove and replace with components of the same, approximate size and diameter. See **MULTI- ACCESSORY ATTACHMENTS AND APPLICATIONS**.

## STORAGE

### **Application: SG87SH SURFACE SHARK**

Proper procedure for long term storage of the Floor Grinder will protect it against the effects of corrosion and damage. If the Floor Grinder is not to be operated for a period of 30 days or more, proceed to store as follows:

1) Clean all accumulated foreign material from the Floor Grinder utilizing an appropriate safety solvent.



## **CAUTION**

**Observe all applicable safety precautions for the solvent.**

2) Follow the procedure as outlined in the material supplied by the electric motor manufacturer describing long term storage for the motor.

3) Check all visible parts for wear, breakage or damage. Order any part required to make the necessary repair. This will avoid a needless delay when operating the Floor Grinder at next use.

4) Apply a dry film lubricant to all exposed metal components to prevent the formation of rust.

5) Store the Floor Grinder inside. If the Floor Grinder must be stored outside, protect it with a suitable covering.

## SPECIFICATIONS

### **Application: SG87SH SURFACE SHARK**

#### **POWER SOURCE**

TYPE 1½ hp, totally enclosed, fan-cooled, capacitor-start, 1725 RPM, single phase, 115 VAC, 60 Hz.

FULL LOADED AMPERAGE (FLA) 13.7 amperes

STARTING POWER REQUIRED (SPR) 69 amperes  
SPR = (FLA) x 5 Factor

#### **FRAME**

STRUCTURE Unitized, welded steel plate

DRIVE REDUCTION SYSTEM B45 Series belt/pulley

MAXIMUM GRINDING WIDTH 12" (305 mm)

OVERALL MACHINE WIDTH 28½" (724 mm)

OVERALL MACHINE LENGTH (Handle Folded) 28" (711 mm)

OVERALL MACHINE LENGTH (Operating Configuration) 39" (991 mm)

TYPICAL OPERATOR HANDLE HEIGHT (Maximum Extension) 40½" (1029 mm)

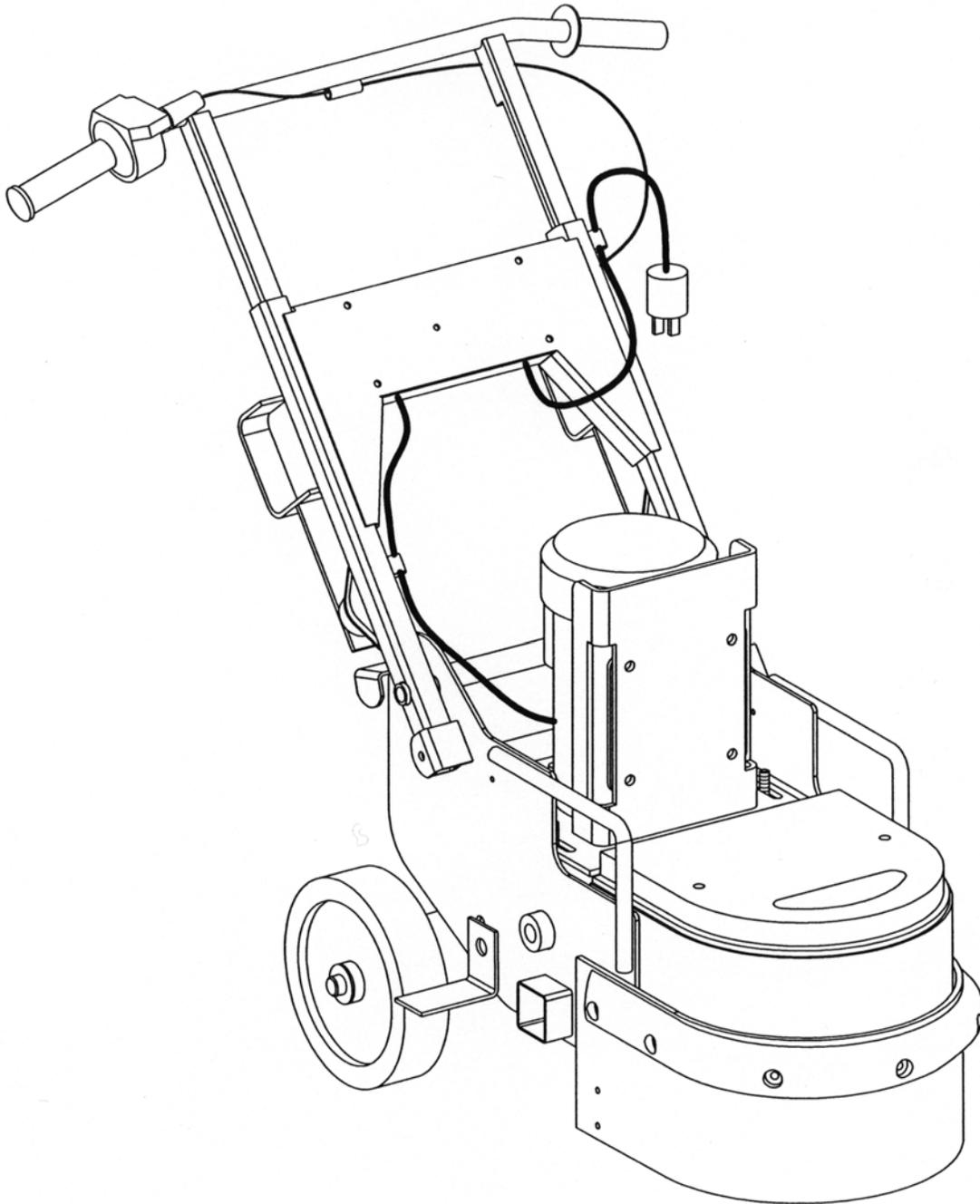
VACUUM SYSTEM CONNECTION 3" (76 mm) diameter

#### **GENERAL**

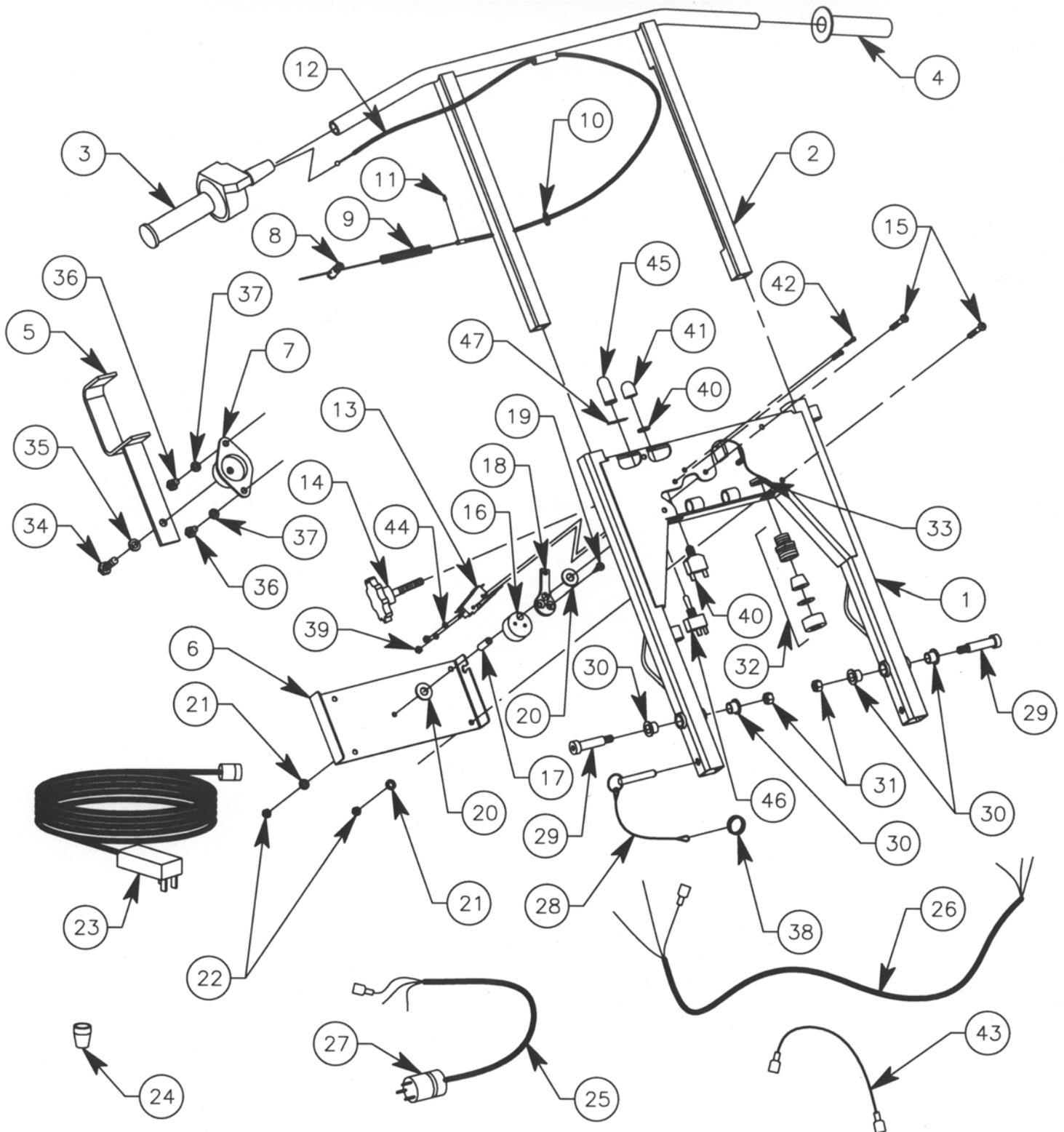
BASIC WEIGHT 242 lbs (110 kg)

# Replacement Part Diagrams

## SG87SH SURFACE SHARK Floor Grinder



# Operator Handle Assembly SG87SH SURFACE SHARK Floor Grinder

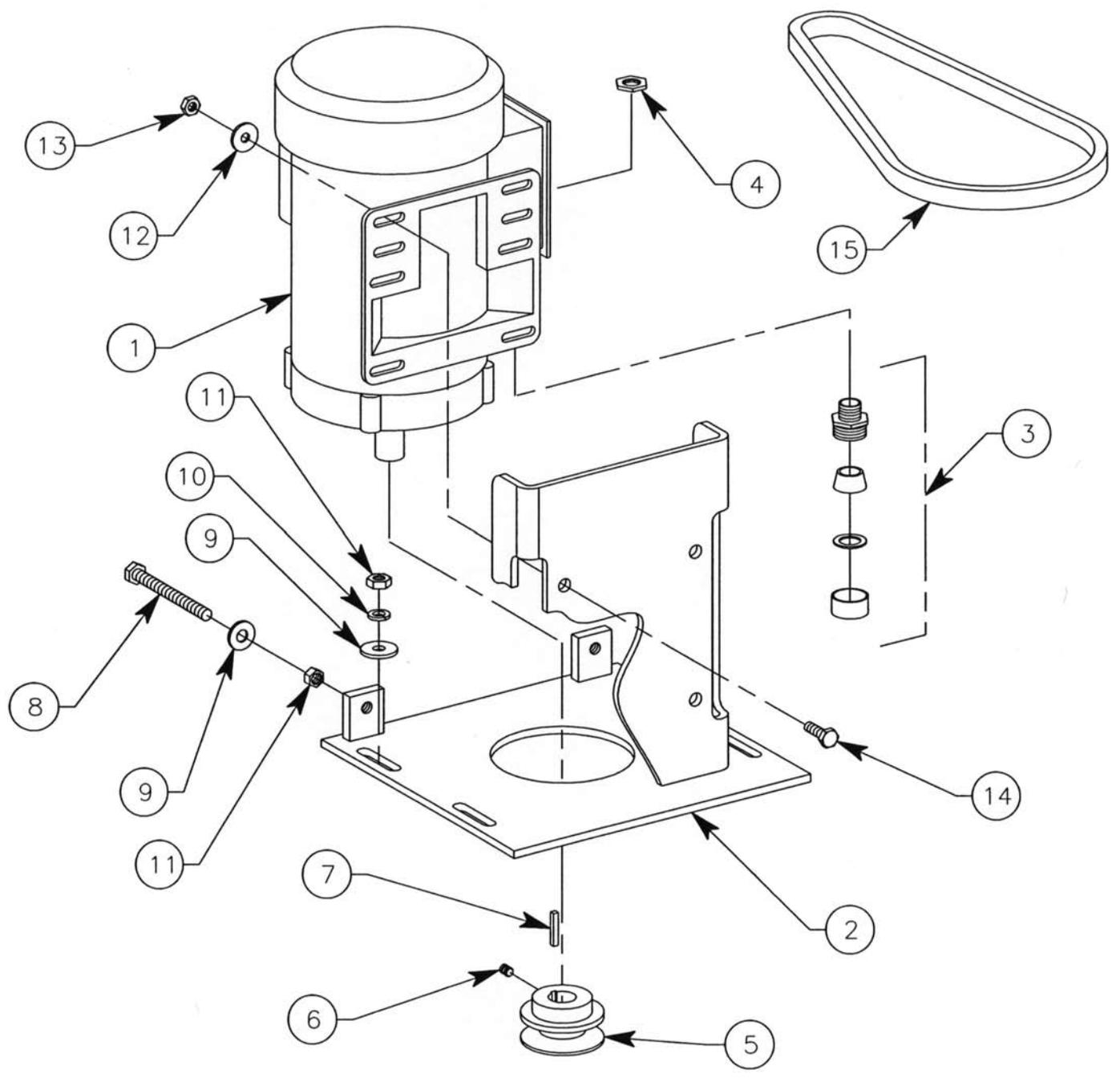


# Operator Handle Assembly

## SG87SH SURFACE SHARK Floor Grinder

Reference Number	PART NUMBER	DESCRIPTION	QTY
1	MSG87SH-0180	Handle, Lower	1
2	MSG87SH-0110	Handle, Top	1
3	M310-0030	Throttle, Twist Control, Plastic, Complete	1
4	MSG87SH-0415	Grip, 7/8", Black	1
5	MSG87SH-0280	Clamp, Hose	2
6	MSG87SH-0190	Cover, Switch	1
7	M660-0900	Mount, Rubber	2
8	MWS-277	Assembly, Swivel	1
9	MSG87SH-0350	Spring, Compression	1
10	MFCS16-0300	Grommet	1
11	MSG87SH-0340	E-Clip, 7/32" External	1
12	M310-0081	Cable, Throttle	1
13	MSG87SH-0070	Switch, 115V	1
14	MSG87SH-0050	Knob Assembly	2
15	M37041300	Screw, Machine, Pan Head Phillips, 1/4-20 UNC x 1-5/8", Plated	5
16	MSG87SH-0170	Cam, Switch	1
17	MSG87SH-0150	Tube, Pivot	1
18	MSG87SH-0160	Lever, Switch	1
19	MSG87SH-0380	Screw, Wood, Flat Head Phillips, #12 x 7/8"	2
20	M17060000	Washer, Flat, 3/8", Plated	2
21	M16040000	Washer, Lock, 1/4", Plated	5
22	M90040000	Nut, Acorn, 1/4-20 UNC, Plated	5
23	MFCS16-1000	Extension Cord, GFCI	1
24	MWIRE NUT Y	Nut, Wire, Yellow	3
25	MSG87SH-0260	Cable, Switch To Plug	1
26	MSG87SH-0270	Cable, Switch To Motor	1
27	MHUB-4720C	Plug, Twist Lock, Male, 15A	1
28	MFCS16-0210	Pin With Lanyard	2
29	M62081400	Bolt, Shoulder, 1/2 x 1-3/4"	2
30	MFCS16-0340	Bushing, Bronze, 1/2" ID	4
31	M86060000	Nut, Hexagon, Flange, 3/8-16 UNC, Plated	2
32	MCG-5050	Relief, Strain	2
33	M801	Nut, Bulkhead (Included With Reference Number 32)	2
34	M15060800	Screw, Cap, 3/8-16 UNC x 1", Plated	2
35	M16060000	Washer, Lock, 3/8", Plated	2
36	M15050400	Screw, Cap, 5/16-18 UNC x 1/2", Plated	4
37	M16050000	Washer, Lock, 5/16", Plated	4
38	MKIC-172	Ring, Kick Out	2
39	M18010000	Hut, Hexagon, #6-32, Plated	2
40	MSG87SH-0080	Circuit Breaker, 15 AMP	1
41	MSG87SH-0090	Cover, Circuit Breaker	1
42	M34010800	Screw, Machine, Pan Head Phillips, #6-32 UNC, x 1", Plated	2
43	MSG87SH-0100	Wire, Jumper	1
44	M58010000	Washer, Lock, External Tooth, #6	2
45	MSG87SH-0300-020	Cover, Master Switch	1
46	MSG87SH-0300-010	Switch, Master Toggle	1
47	MSG87SH-0300-030	Face Plate, ON/OFF	1

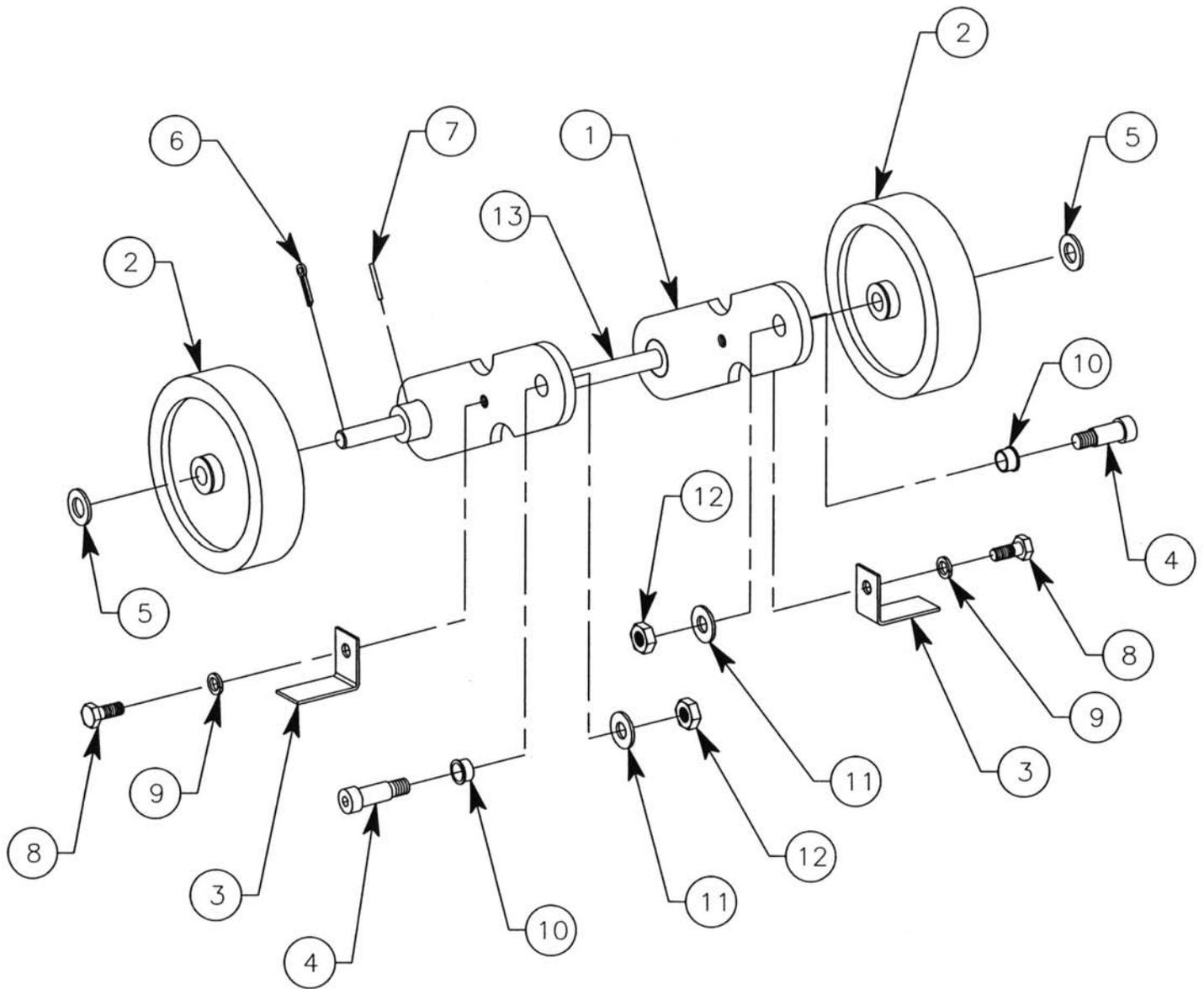
# Electric Motor Assembly SG87SH SURFACE SHARK Floor Grinder



## Electric Motor Assembly SG87SH SURFACE SHARK Floor Grinder

Reference Number	PART NUMBER	DESCRIPTION	QTY
1	MSG87SH-0030	Motor, Electric, 1-1/2 HP, 115 VAC	1
2	MSG87SH-0250	Mount, Electric Motor	1
3	MCG-5050	Relief, Strain	1
4	M801	Nut, Bulkhead (Included With Reference Number 3)	Reference
5	MSG87SH-0400	Pulley	1
6	M31050600	Screw, Set, Cup Point, 5/16-18 UNC x 3/8" (Included With Reference Number 5)	1
7	M63030800	Key, Square, 3/16" x 3/16" x 1"	1
8	MCS8-0470	Screw, Cap, 3/8-16 UNC x 3-1/2", Full Thread, Plated	2
9	M17060000	Washer, Flat, 3/8", Plated	6
10	M16060000	Washer, Lock, 3/8", Plated	4
11	M18060000	Nut, Hexagon, 3/8-16 UNC, Plated	6
12	M17040000	Washer, Flat, 1/4", Plated	4
13	M53050000	Nut, Hexagon, Nyloc®, 5/16-18 UNC, Plated	4
14	M15050800	Screw, Cap, 5/16-18 UNC x 1", Plated	4
15	MB45	Belt, V Type	1

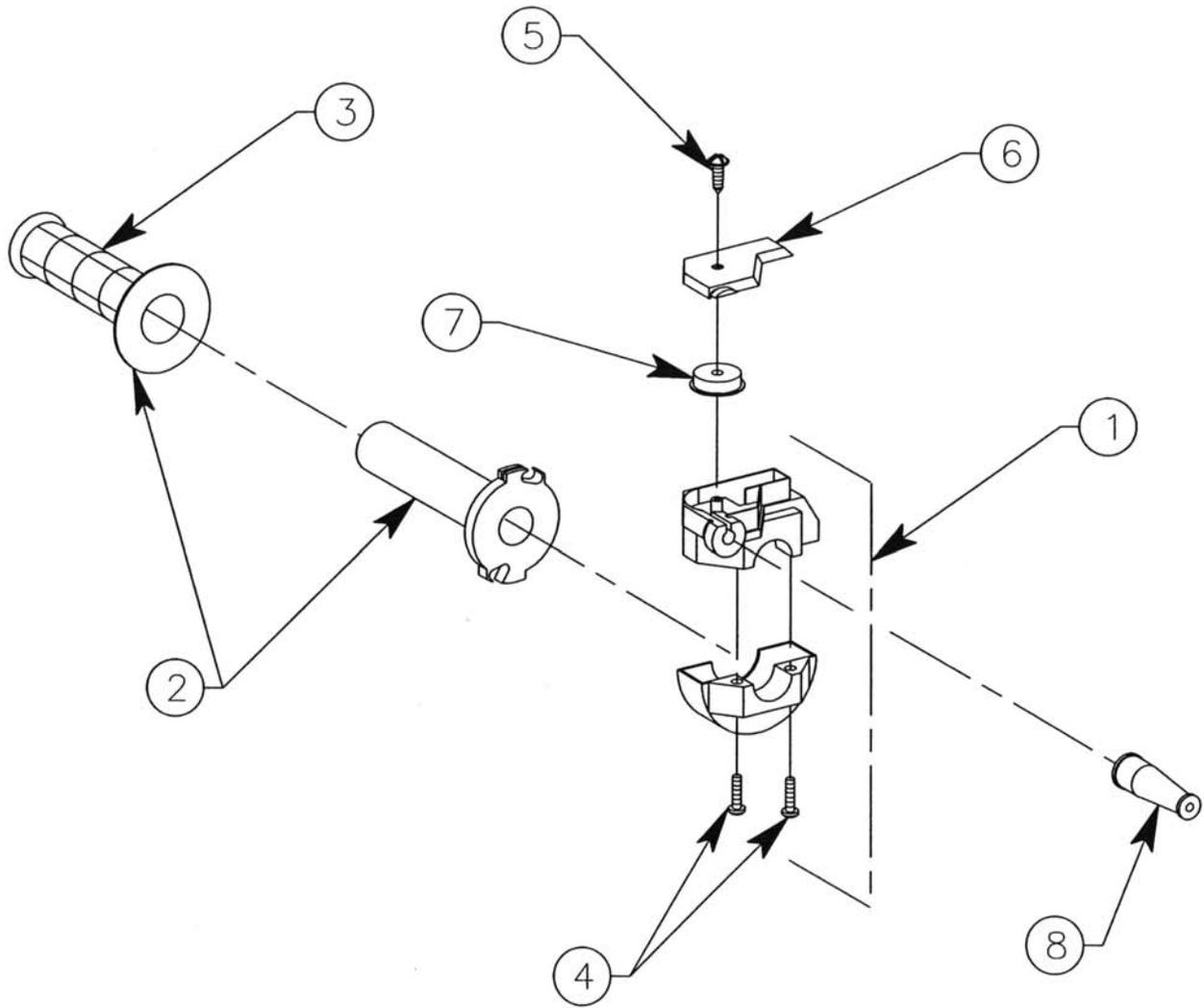
# Wheel Dolly Assembly SG87SH SURFACE SHARK Floor Grinder



## Wheel Dolly Assembly SG87SH SURFACE SHARK Floor Grinder

Reference Number	PART NUMBER	DESCRIPTION	QTY
1	MSG24-0190	Arm, Swing	2
2	MSG24-0260	Wheel	2
3	MSG87SH-0370	Scraper, Wheel	2
4	M62121200	Bolt, Shoulder, 3/4-10 UNC x 1-1/2"	2
5	M17120000	Washer, Flat, 3/4", Plated	2
6	M22022400	Pin, Cotter, 5/32" x 1-1/2", Plated	2
7	M20031200	Pin, Roll, 3/16" x 1-1/2"	2
8	M15081000	Screw, Cap, 1/2-13 UNC x 1-1/4", Plated	2
9	M16080000	Washer, Lock, 1/2", Plated	2
10	M660-0410	Bearing, Oilite®	2
11	M17100000	Washer, Flat, 5/8", Plated	2
12	M18100000	Nut, Hexagon, 5/8-11 UNC, Plated	2
13	MSG87SH-0200	Axle, Plated	1

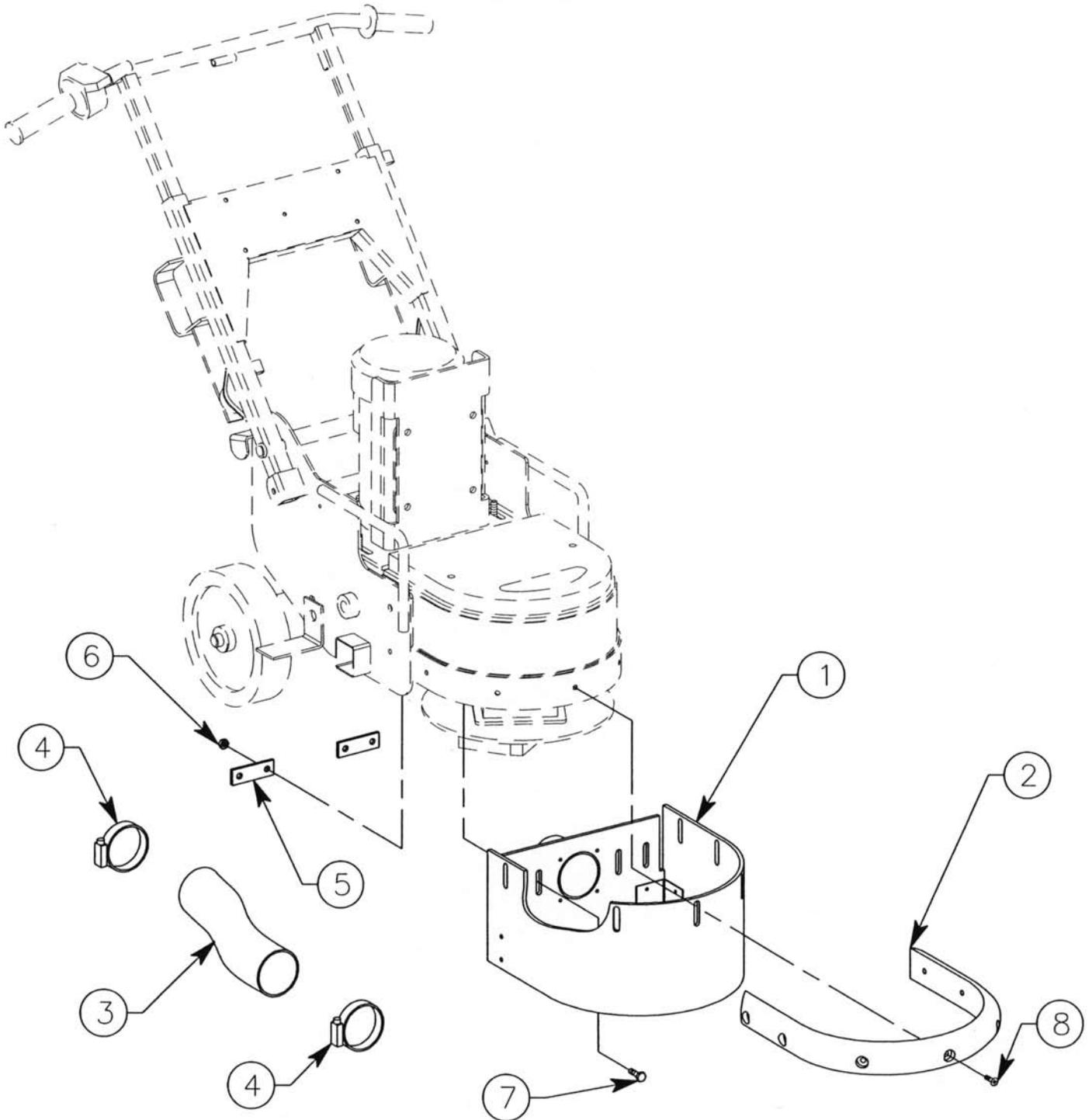
Plastic Body  
Magura® Throttle Control Assembly  
SG87SH SURFACE SHARK Floor Grinder



Plastic Body  
 Magura® Throttle Control Assembly  
 SG87SH SURFACE SHARK Floor Grinder

Reference Number	PART NUMBER	DESCRIPTION	QTY
1	M310-0030-010-A	Body Assembly, (Includes P/N 310-0030-040, Qty 2)	1
2	M310-0030-020-A	Tube, Throttle (Includes P/N 310-0020-030)	1
3	M310-0020-030	Grip, Handle	1
4	M310-0030-040	Screw, Pan Head, M5 x 20	2
5	M310-0030-050	Screw, Self Tapping	1
6	M310-0030-060	Cover, Top	1
7	M310-0030-070	Sheave, Roller	1
8	M310-0020-080	Boot, Rubber	1

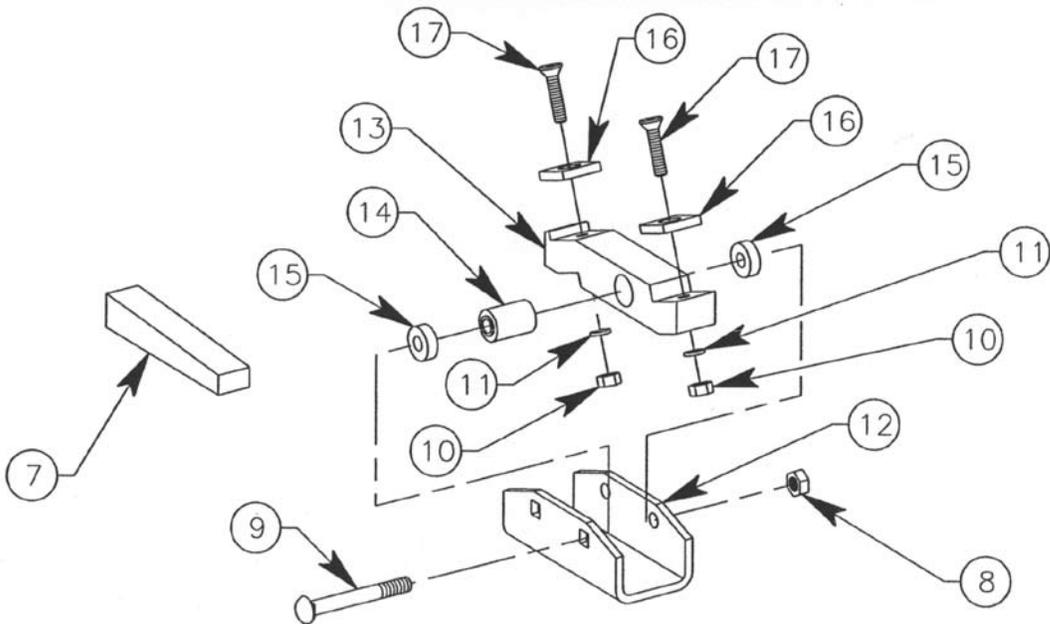
# Safety And Dust Shield Assembly SG87SH SURFACE SHARK Floor Grinder



## Safety And Dust Shield Assembly SG87SH SURFACE SHARK Floor Grinder

Reference Number	PART NUMBER	DESCRIPTION	QTY
1	MSG87SH-0230	Skirt Assembly	1
2	MSG87SH-0220	Bumper, Rubber	1
3	MSG87SH-0060	Hose, Vacuum	1
4	M56480000	Clamp, Hose, 3"	2
5	MSG87SH-0040	Strap, Skirt	2
6	M53050000	Nut, Hexagon, Nyloc®, 5/16-18 UNC, Plated	4
7	M15050700	Screw, Cap, 5/16-18 UNC x 7/8", Plated	4
8	M61040800	Screw, Countersunk, 1/4-20 UNC x 1", Plated	7

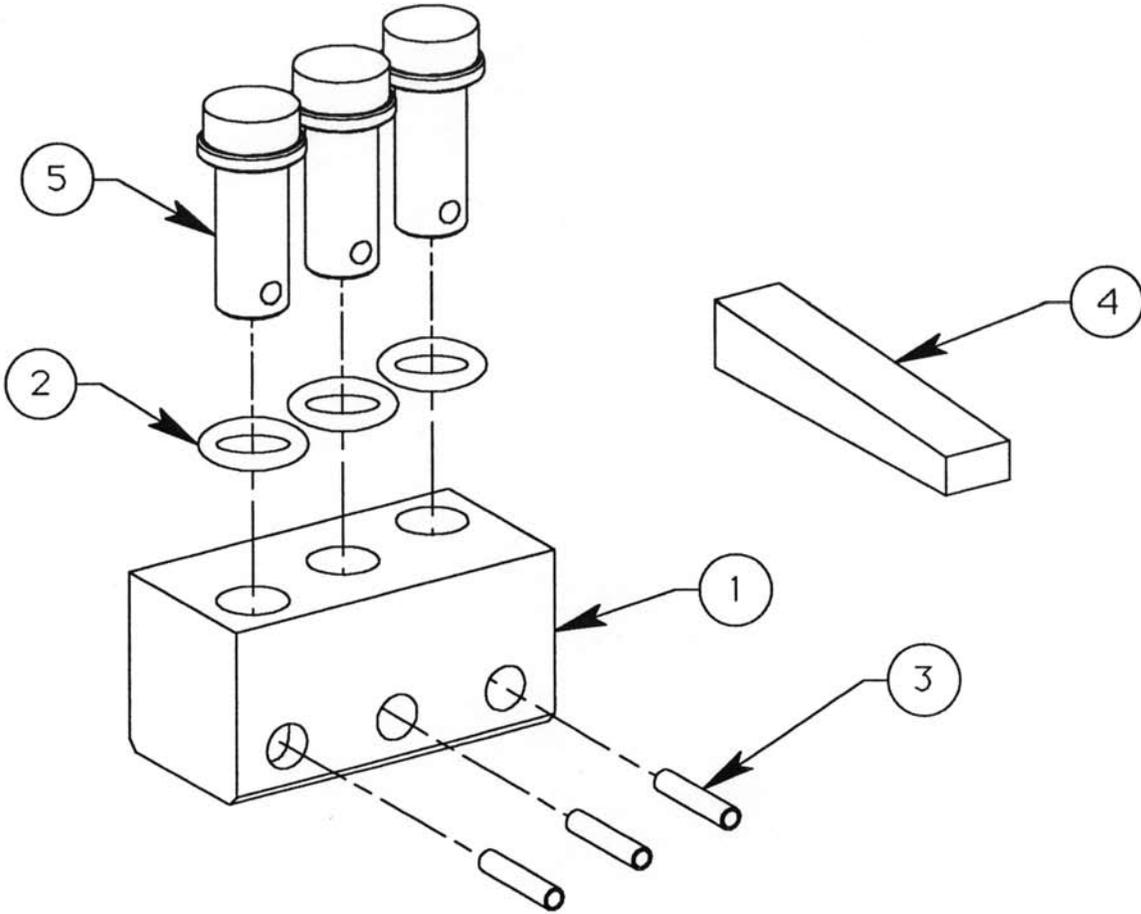
Cutter Assembly SHARK TOOTH  
Coating Removal System  
SG87SH SURFACE SHARK Floor Grinder



Cutter Assembly SHARK TOOTH  
Coating Removal System  
SG87SH SURFACE SHARK Floor Grinder

Reference Number	PART NUMBER	DESCRIPTION	QTY
7	WEDGE	Wedge, Plastic	1
8	53050000	Nut, Hexagon, 5/16-18 UNC, Nyloc®, Plated	1
9	87052000	Bolt, Carriage, 5/16-18 UNC x 2-1/2", Plated, Grade 5	1
10	18040000	Net, Hexagon, 1/4-20 UNC, Plated	2
11	16040000	Washer, Lock, 1/4, Plated	2
12	SG24-1900-010	Housing	1
13	SG24-1900-020	Holder, Insert	1
14	J-2005-2A	Mount, Rubber	1
15	SG24-1900-040	Spacer	2
16	SG24-1900-030	Insert, Tungsten Carbide	2
17	27041000	Screw, Countersunk, 1/4-20 UNC x 1-1/4"	2

Grinding Block Assembly DIAMOND TOOTH  
Diamond Grinding System  
SG87SH SURFACE SHARK Floor Grinder



Grinding Block Assembly DIAMOND TOOTH  
 Diamond Grinding System  
 SG87SH SURFACE SHARK Floor Grinder

Reference Number	PART NUMBER	DESCRIPTION	QTY
1	MSG24-2101-010	Block	1
2	MSG24-2101-030	"O" Ring	3
3	M83040901	Pin, Retaining (Stainless Steel)	3
4	WEDGE	Wedge, Plastic	1
5	SG24-2101-020	Pin, Diamond, Yellow Identification Color (40-50 Grit, For General Purpose Use)	3

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