

OWNER'S MANUAL



308-030

Rev D

This manual contains IMPORTANT INSTRUCTIONS and WARNINGS. READ AND RETAIN FOR REFERENCE.

Supersedes Rev A (and Rev B and C, not published)

PRO 301 Airless Paint Sprayer

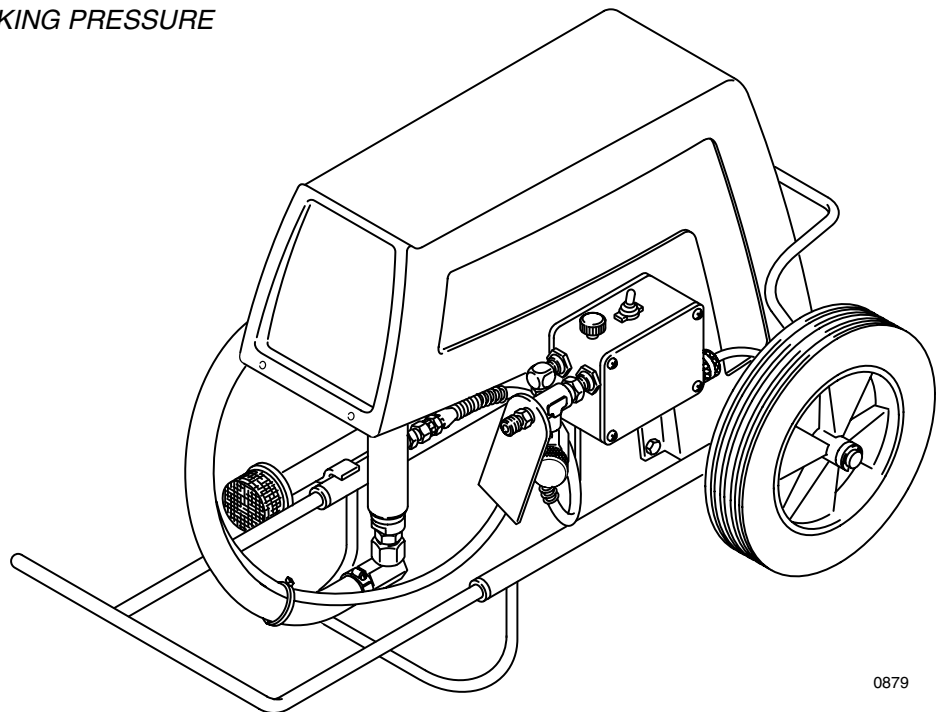
1/3 GPM, Electric

Model 224-604, Series B

2500 psi (172 bar) MAXIMUM WORKING PRESSURE

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NOTE: This is an example of the DANGER label on your sprayer. This label is available in other languages, free of charge. See page 28 to order.

! DANGER !			
	FIRE AND EXPLOSION HAZARD		SKIN INJECTION HAZARD
<p>Spray painting, flushing or cleaning equipment with flammable liquids in confined areas can result in fire or explosion.</p> <p>Use outdoors or in extremely well ventilated areas. Ground equipment, hoses, containers and objects being sprayed.</p> <p>Avoid all ignition sources such as static electricity from plastic drop cloths, open flames such as pilot lights, hot objects such as cigarettes, arcs from connecting or disconnecting power cords or turning light switches on and off.</p> <p>Failure to follow this warning can result in death or serious injury.</p>		<p>Liquids can be injected into the body by high pressure airless spray or leaks – especially hose leaks.</p> <p>Keep body clear of the nozzle. Never stop leaks with any part of the body. Drain all pressure before removing parts. Avoid accidental triggering of gun by always setting safety latch when not spraying.</p> <p>Never spray without a tip guard.</p> <p>In case of accidental skin injection, seek immediate "Surgical Treatment".</p> <p>Failure to follow this warning can result in amputation or serious injury.</p>	
READ AND UNDERSTAND ALL LABELS AND INSTRUCTION MANUALS BEFORE USE			

THE O'BRIEN CORPORATION, 450 E. Grand Avenue, So. San Francisco, CA 94080

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WARNINGS

HIGH PRESSURE SPRAY CAN CAUSE SERIOUS INJURY. FOR PROFESSIONAL USE ONLY. OBSERVE ALL WARNINGS.

Read and understand all instruction manuals before operating the equipment.

FLUID INJECTION HAZARD

General Safety

This equipment generates very high fluid pressure. Spray from the gun, leaks or ruptured components can inject fluid through your skin and into your body, and cause extremely serious bodily injury, including the need for amputation. Also, fluid injected or splashed into the eyes or on the skin can cause serious damage.

NEVER point the spray gun at any one or at any part of the body. NEVER put your hand or fingers over the spray tip. NEVER try to “blow back” paint; this is NOT an air spray system.

ALWAYS have the tip guard in place on the spray gun when spraying.

ALWAYS follow the **PRESSURE RELIEF PROCEDURE**, below, before cleaning or removing the spray tip or servicing any system equipment.

NEVER try to stop or deflect leaks with your hand or body.

Be sure equipment safety devices are operating properly before each use.

Medical Alert—Airless Spray Wounds

If any fluid appears to penetrate your skin, get **EMERGENCY MEDICAL CARE AT ONCE. DO NOT TREAT AS A SIMPLE CUT.** Tell the doctor exactly what fluid was injected.

Note to Physician: *Injection in the skin is a traumatic injury. It is important to treat the injury surgically as soon as possible.*

Do not delay treatment to research toxicity . Toxicity is a concern with some exotic coatings injected directly into the blood stream. Consultation with a plastic surgeon or reconstructive hand surgeon may be advisable.

Spray Gun Safety Devices

Be sure all gun safety devices are operating properly before each use. Do not remove or modify any part of the gun; this can cause a malfunction and result in serious bodily injury.

Safety Latch

Whenever you stop spraying, even for a moment, always set the gun safety latch in the closed or “safe” position, making the gun inoperative. Failure to set the safety latch can result in accidental triggering of the gun.

Diffuser

The gun diffuser breaks up spray and reduces the risk of fluid injection when the tip is not installed. Check diffuser operation regularly. Follow the **PRESSURE RELIEF PROCEDURE**, below, then remove the spray tip. Aim the gun into a metal pail, holding the gun firmly to the pail. Using the lowest possible pressure, trigger the gun. If the fluid emitted *is not* diffused into an irregular stream, replace the diffuser immediately.

Tip Guard

ALWAYS have the tip guard in place on the spray gun while spraying. The tip guard alerts you to the fluid injection hazard and helps reduce, but does not prevent, the risk of accidentally placing your fingers or any part of your body close to the spray tip.

Trigger Guard

Always have the trigger guard in place on the gun when spraying to reduce the risk of accidentally triggering the gun if it is dropped or bumped.

Spray Tip Safety

Use extreme caution when cleaning or changing spray tips. If the spray tip clogs while spraying, engage the gun safety latch immediately. ALWAYS follow the **PRESSURE RELIEF PROCEDURE**, below, and then remove the spray tip to clean it.

NEVER wipe off build-up around the spray tip until the pressure is fully relieved and the gun safety is engaged.

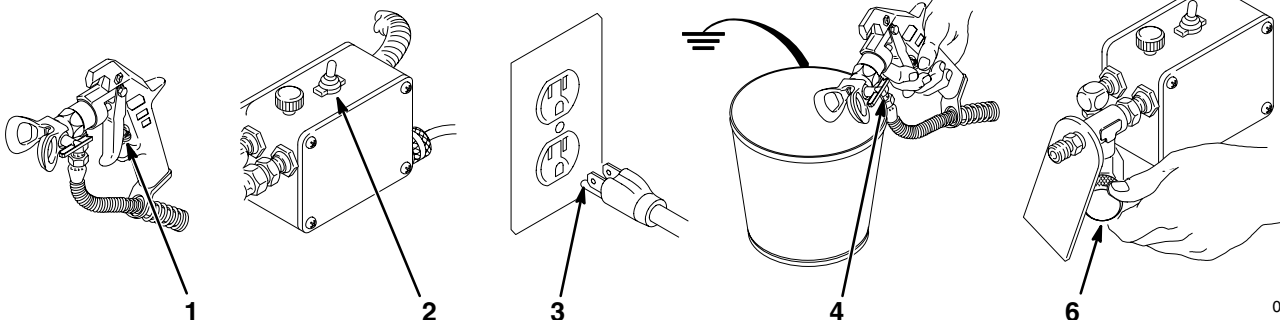
PRESSURE RELIEF PROCEDURE

To reduce the risk of serious bodily injury, including fluid injection, splashing fluid or solvent in the eyes or on the skin, or injury from moving parts or electric shock, always follow this procedure whenever you shut off the sprayer, when checking or servicing any part of the spray system, when installing, cleaning or changing spray tips, and whenever you stop spraying.

1. Engage the gun safety latch.
2. Turn the ON/OFF switch to OFF.
3. Unplug the power supply cord.

4. Disengage the gun safety latch. Hold a metal part of the gun firmly to the side of a grounded metal pail, and trigger the gun to relieve pressure.
5. Engage the gun safety latch.
6. Open the pressure drain valve, having a container ready to catch the drainage. Leave the valve open until you are ready to spray again.

If you suspect that the spray tip or hose is completely clogged, or that pressure has not been fully relieved after following the steps above, VERY SLOWLY loosen the tip guard retaining nut or hose end coupling to relieve pressure gradually, then loosen completely. Now clear the tip or hose.



MOVING PARTS HAZARD

Moving parts can pinch or amputate your fingers or other body parts. **KEEP CLEAR** of moving parts when starting or operating the sprayer. Follow the **Pressure Relief Procedure** on page 2 before checking or servicing any part of the sprayer, to prevent it from starting accidentally.

EQUIPMENT MISUSE HAZARD

General Safety

Any misuse of the spray equipment or accessories, such as overpressurizing, modifying parts, using incompatible chemicals and fluids, or using worn or damaged parts, can cause them to rupture and result in fluid injection, splashing in the eyes or on the skin, or other serious bodily injury, or fire, explosion or property damage.

NEVER alter or modify any part of this equipment; doing so could cause it to malfunction.

CHECK all spray equipment regularly and repair or replace worn or damaged parts immediately.

Always wear protective eyewear, gloves, clothing and respirator as recommended by the fluid and solvent manufacturer.

System Pressure

This sprayer can develop *2500 psi (172 bar) MAXIMUM WORKING PRESSURE*. Be sure all spray equipment and accessories used are rated to withstand this pressure. **DO NOT** exceed the maximum working pressure of any component or accessory used in the system.

Fluid and Solvent Compatibility

All chemicals used in the sprayer must be chemically compatible with the wetted parts shown in the **TECHNICAL DATA** on page 31. Consult your chemical supplier to ensure compatibility.

Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents in this equipment, which contains aluminum and/or zinc parts. Such use could result in a serious chemical reaction, with the possibility of explosion, which could cause death, serious bodily injury and/or substantial property damage.

FIRE OR EXPLOSION HAZARD

Static electricity is created by the flow of fluid through the pump and hose. If every part of the spray equipment is not properly grounded, sparking may occur, and the system may become hazardous. Sparking may also occur when plugging in or unplugging a power supply cord or using a gasoline engine. Sparks can ignite fumes from solvents and the fluid being sprayed, dust particles and other flammable substances, whether you are spraying indoors or outdoors, and can cause a fire or explosion and serious bodily injury and property damage. Always plug the sprayer into an outlet at least 20 feet (6 m) away from the sprayer and the spray area. Do not plug in or unplug any power supply cords in the spray area when there is any chance of igniting fumes still in the air.

If there is any static sparking or even a slight shock while using this equipment, **STOP SPRAYING IMMEDIATELY**. Check the entire system for proper grounding. Do not use the system again until the problem has been identified and corrected.

Grounding

To reduce the risk of static sparking, ground the sprayer and all other spray equipment used or located in the spray area. **CHECK** your local electrical code for detailed grounding instructions for your area and type of equipment. **BE SURE** to ground all of this spray equipment:

1. *Sprayer*: plug the power supply cord, or extension cord – each equipped with an undamaged, three-prong plug, into a properly grounded outlet. Do not use an adapter. All extension cords must have three wires and be rated for 15 Amps.

HOSE SAFETY

High pressure fluid in the hoses can be very dangerous. If the hose develops a leak, split or rupture due to any kind of wear, damage or misuse, the high pressure spray emitted from it can cause a fluid injection injury or other serious bodily injury or property damage.

ALL FLUID HOSES MUST HAVE STRAIN RELIEFS ON BOTH ENDS! The strain reliefs help protect the hose from kinks or bends at or close to the coupling which can result in hose rupture.

TIGHTEN all fluid connections securely before each use. High pressure fluid can dislodge a loose coupling or allow high pressure spray to be emitted from the coupling.

NEVER use a damaged hose. Before each use, check the entire hose for cuts, leaks, abrasion, bulging cover, or damage or movement of the hose couplings. If any of these conditions exist, replace the hose immediately. **DO NOT** try to recouple high pressure hose or mend it with tape or any other device. A repaired hose cannot contain the high pressure fluid.

HANDLE AND ROUTE HOSES CAREFULLY. Do not pull on hoses to move equipment. Keep hoses clear of moving parts and hot surfaces of the pump and gas engine. Do not use fluids or solvents which are not compatible with the inner tube and cover of the hose. **DO NOT** expose Graco hoses to temperatures above 180° F (82° C) or below -40° F (-40° C).

Hose Grounding Continuity

Proper hose grounding continuity is essential to maintaining a grounded spray system. Check the electrical resistance of your fluid hoses at least once a week. If your hose does not have a tag on it which specifies the maximum electrical resistance, contact the hose supplier or manufacturer for the maximum resistance limits. Use a resistance meter in the appropriate range for your hose to check the resistance. If the resistance exceeds the recommended limits, replace it immediately. An ungrounded or poorly grounded hose can make your system hazardous. Also read **FIRE OR EXPLOSION HAZARD**, below.

2. *Fluid hoses*: use only grounded hoses with a maximum of 500 ft (150 m) combined hose length to ensure grounding continuity. See **Hose Grounding Continuity** above.
3. *Spray gun*: obtain grounding through connection to a properly grounded fluid hose and sprayer.
4. *Object being sprayed*: according to local code.
5. *Fluid supply container*: according to local code.
6. *All solvent pails used when flushing*, according to local code. Use only metal pails, which are conductive. Do not place the pail on a non-conductive surface, such as paper or cardboard, which interrupts the grounding continuity.
7. *To maintain grounding continuity when flushing or relieving pressure*, always hold a metal part of the gun firmly to the side of a grounded metal pail, then trigger the gun.

Flushing Safety

Reduce the risk of fluid injection injury, static sparking, or splashing by following the flushing procedure given on page 13 of this manual. Follow the **PRESSURE RELIEF PROCEDURE** on page 2, and remove the spray tip before flushing. Hold a metal part of the gun firmly to the side of a grounded metal pail and use the lowest possible fluid pressure during flushing.

IMPORTANT

United States Government safety standards have been adopted under the Occupational Safety and Health Act. These standards – particularly the General Standards, Part 1910, and the Construction Standards, Part 1926 – should be consulted.

AVERTISSEMENT

La pulvérisation à haute pression peut causer de blessures très graves.
Réservé exclusivement à l'usage professionnel. Observer toutes les consignes de sécurité.
Bien lire et bien comprendre tous les manuels d'instructions avant d'utiliser le matériel.

RISQUES D'INJECTION

Consignes générales de sécurité

Cet appareil produit un fluide à très haute pression. Le fluide pulvérisé par le pistolet ou le fluide sous pression provenant de fuites ou de ruptures peut pénétrer sous la peau ou à l'intérieur du corps et entraîner des blessures très graves, voir même une amputation. Même sans être sous pression, le fluide éclaboussant ou entrant dans les yeux peut aussi entraîner des blessures graves.

NE JAMAIS pointer le pistolet vers quelqu'un ou vers une partie quelconque du corps. NE JAMAIS mettre le main ou les doigts sur l'ajutage du pulvérisateur. NE JAMAIS essayer de "refouler" la peinture. Cet appareil N'est PAS un compresseur pneumatique.

TOUJOURS garder la protection de l'ajutage en place sur le pistolet pendant la pulvérisation.

TOUJOURS observer la **Marche à Suivre Pour Détendre la Pression** donnée plus loin, avant de nettoyer ou d'enlever l'ajutage du pulvérisateur, ou d'effectuer un travail quelconque sur une partie de l'appareil.

NE JAMAIS essayer d'arrêter ou de dévier les fuites avec la main ou le corps.

Avant chaque utilisation, bien s'assurer que les dispositifs de sécurité fonctionnent correctement.

Soins médicaux

En cas de pénétration de fluide sous la peau: **DEMANDER IMMEDIATEMENT DES SOINS MÉDICAUX D'URGENCE. NE PAS SOIGNER CETTE BLESSURE COMME UNE SIMPLE COUPURE.**

***Avis au médecin:** La pénétration des fluides sous la peau est un traumatisme. Il est important de traiter chirurgicalement cette blessure immédiatement. Ne pas retarder le traitement pour effectuer des recherches sur la toxicité. Certains revêtements exotiques sont dangereusement toxiques quand ils sont injectés directement dans le sang. Il est souhaitable de consulter un chirurgien esthétiques ou un chirurgien spécialisé dans la reconstruction des mains.*

Dispositifs de sécurité du pistolet

Avant chaque utilisation, bien s'assurer que tous les dispositifs de sécurité du pistolet fonctionnent correctement. Ne pas en-

lever ni modifier une partie quelconque du pistolet; ceci risquerait d'entraîner un mauvais fonctionnement et des blessures graves.

Verrou de sécurité

A chaque fois que l'on s'arrête de pulvériser, même s'il s'agit d'un court instant, toujours mettre le verrou de sécurité du pistolet sur la position, "fermée" ou "sécurité" ("safe"), pour empêcher le pistolet de fonctionner. Si le verrou de sécurité n'est pas mis, le pistolet peut se déclencher accidentellement.

Diffuseur

Le diffuseur du pistolet sert à diviser le jet et à réduire les risques d'injection accidentelle quand l'ajutage n'est pas en place. Vérifier le fonctionnement du diffuseur régulièrement. Pour cette vérification, détendre la pression en observant la **Marche à Suivre Pour Détendre la Pression** donnée plus loin enlever l'ajutage du pulvérisateur. Pointer le pistolet dans un seau en métal, en le maintenant fermement contre le seau. Puis, en utilisant la pression la plus faible possible, appuyer sur la gâchette du pistolet. Si le fluide projeté n'est pas diffusé sous forme de jet irrégulier, remplacer immédiatement le diffuseur.

Protection de l'ajutage

TOUJOURS maintenir la protection de l'ajutage en place sur le pistolet du pulvérisateur pendant la pulvérisation. La protection de l'ajutage attire l'attention sur les risques d'injection et contribue à réduire, mais n'évite pas le risque, que les doigts ou une partie quelconque du corps ne passent accidentellement à proximité immédiate de l'ajutage du pulvérisateur.

Consignes de sécurité concernant l'ajutage du pulvérisateur

Faire extrêmement attention à l'occasion du nettoyage ou du remplacement des ajutages du pulvérisateur. Si l'ajutage se bouche pendant la pulvérisation, mettre immédiatement le verrou de sécurité du pistolet. TOUJOURS bien observer la **Marche à Suivre Pour Détendre la Pression** puis enlever l'ajutage du pulvérisateur pour le nettoyer.

NE JAMAIS essayer ce qui s'est accumulé autour de l'ajutage du pulvérisateur avant que la pression ne soit complètement tombée et que le verrou de sécurité du pistolet ne soit engagé.

MARCHE À SUIVRE POUR DÉTENDRE LA PRESSION

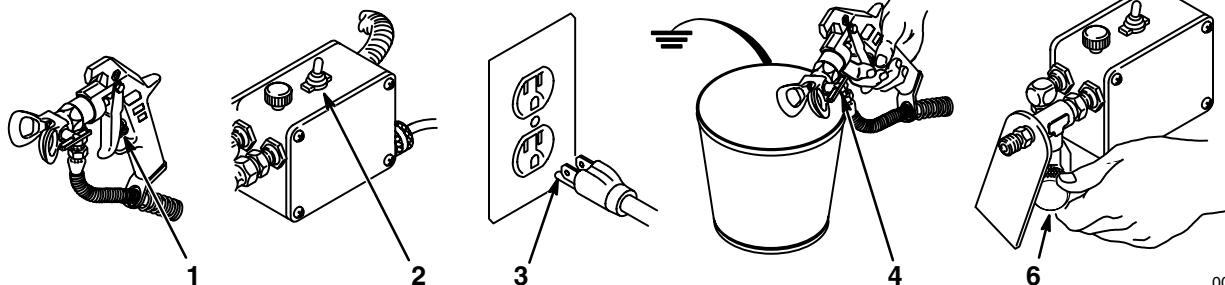
Pour réduire les risques de blessures graves, y compris les blessures par projection de fluide ou celles causées par de éclaboussures dans les yeux ou sur la peau, par des pièces en mouvement, toujours bien observer cette marche à suivre chaque fois que l'on arrête le pulvérisateur, à l'occasion de la vérification, du réglage ou du nettoyage du système ou lors du changement des ajutages.

1. Engager le verrou de sécurité du pistolet.
2. Mettre le levier d'arrêt du moteur sur ARRÊT (OFF).
3. Débrancher le cord d'alimentation.
4. Désengager le verrou de sécurité du pistolet. Tout en maintenant une partie métallique du pistolet fermement appuyé con-

tre le côté d'un seau en métal, actionner le pistolet pour libérer la pression.

5. Engager le verrou de sécurité du pistolet.
6. Ouvrir la soupape de sécurité et la laisser ouverte jusqu'à ce que l'on soit prêt à se servir de nouveau du pulvérisateur.

Si l'on soupçonne que le tuyau ou l'ajutage est complètement bouché ou que la pression n'a pas été complètement libérée après avoir procédé aux opérations ci-dessus, desserrer TRES LENTEMENT un raccord de bout de tuyau ou l'écrou de retenue de la protection de l'ajutage et libérer progressivement la pression.



Consignes générales de sécurité

Toute utilisation anormale de l'appareil de pulvérisation ou des accessoires comme, par exemple, la mise sous une pression excessive, les modifications de pièces, l'utilisation de produits chimiques et de matières incompatibles et l'utilisation de pièces usées ou abîmées peut causer des dégâts à l'appareil ou des ruptures de pièces et entraîner une injection de liquide ou d'autres blessures sérieuses, un incendie, une explosion ou d'autres dégâts.

Toujours porter une protection pour les yeux, de gants, des vêtements protecteur et un dispositif pour la respiration correspondant aux recommandations des fabricants de fluides et solvants.

Pression

Ce pulvérisateur peut produire une **PRESSION MAXIMUM DE TRAVAIL 172 bar (2500 lb/po.2)**. S'assurer que tous les éléments du pulvérisateur et ses accessoires sont conçus pour résister à la pression maximum de travail de ce pulvérisateur. **NE PAS dépasser la pression maximum de travail d'aucun des éléments ou accessoires utilisés avec cet appareil.**

Compatibilité chimique des corps

BIEN S'ASSURER que tous les corps des solvants utilisés sont chimiquement compatibles avec les parties mouillées indiquées dans les "Données techniques", à page 31. Toujours lire soigneusement les documents et brochures du fabricant des fluides et solvants utilisés avant de s'en servir dans ce pulvérisateur.

Le fluide à haute pression circulant dans les tuyaux peut être très dangereux. En cas de fuite sur le tuyau, de fissure, déchirure ou rupture à la suite de l'usure, de dégâts ou d'une mauvaise utilisation, les projections de fluide haute pression qui en proviennent peuvent entraîner des blessures graves par pénétration sous la peau ou par contact, ainsi que des dégâts matériels.

RISQUES D'INCENDIE OU D'EXPLOSION

De l'électricité statique est produite par le passage du fluide à grande vitesse dans la pompe et dans les tuyaux. Si toutes les pièces de l'appareil de pulvérisation ne sont pas convenablement reliées ou à la masse ou à la terre, des étincelles peuvent se produire et l'appareil risque d'être dangereux. Des étincelles peuvent également se produire à l'occasion du branchement ou du débranchement du cordon d'alimentation ou de l'utilisation d'un moteur à essence. Les étincelles sont suffisantes pour allumer les vapeurs de solvants et le fluide pulvérisé, les fines particules de poussière ainsi que d'autres substances inflammables, quand on pulvérise à l'intérieur ou à l'extérieur, et elles peuvent causer un incendie ou une explosion, ainsi que des blessures graves et des dégâts matériels. Toujours brancher le pulvérisateur dans une prise se trouvant à au moins 6 m (20 pieds) de l'appareil et de l'endroit où se fait la pulvérisation. Ne pas brancher ou débrancher un cordon d'alimentation quel qu'il soit dans la zone où se fait la pulvérisation quand il y a le moindre risque que des vapeurs encore présentes dans l'air prennent feu.

S'il se produit des étincelles d'électricité statique, ou si vous ressentez la moindre décharge, **ARRETEZ IMMEDIATEMENT LA PULVERISATION**. Vérifiez que le système avant que le problème soit identifié et corrigé.

Mise à la terre ou à la masse

Pour réduire les risques de production d'étincelles d'électricité statique, le pulvérisateur et tous les équipements utilisés ou se trouvant dans la zone de pulvérisation doivent être reliés à la terre ou à la masse. Pour connaître le détail des instructions de mise à la terre dans la région et le type particulier d'équipement, **CONSULTER** le code ou les réglementations électriques locales. **S'ASSURER** que tous les équipements de pulvérisation suivants sont bien reliés à la terre:

TOUS LES TUYAUX FLEXIBLES DOIVENT AVOIR DES RESSORTS SPIRALE DE PROTECTION AUX 2 BOUTS!

Les spirales de protection contribuent à éviter la formation de pliures, de boucles ou de nœuds sur les tuyaux qui pourraient entraîner la rupture du tuyau à l'endroit du raccord ou à son voisinage.

SERRER FERMEMENT tous les raccords avant chaque utilisation. Le fluide sous pression peut faire sauter un raccord desserré ou produire un jet à haute pression s'échappant par le raccord.

NE JAMAIS utiliser un tuyau endommagé. **NE PAS** essayer de refaire le raccord d'un tuyau haute pression ni de réparer le tuyau avec du ruban adhésif ou par tout autre moyen. Un tuyau réparé ne peut pas résister au fluide sous pression.

MANIPULER LES TUYAUX AVEC PRECAUTION ET CHOISIR SOIGNEUSEMENT LEUR CHEMIN. Ne pas déplacer le fluide en tirant sur le tuyau. Ne pas utiliser de fluides ou de solvants que ne sont pas compatibles avec l'enveloppe intérieure ou extérieure de tuyau. **NE PAS** exposer le tuyau à fluides des températures supérieures à 82°C (180°F) ou inférieures à -40°C (-40°F).

Continuité de la mise à la terre des tuyaux

Une bonne continuité de la mise à la terre des tuyaux est essentielle pour maintenir la mise à la terre de l'ensemble de vaporisation. Vérifiez la résistance électrique de vos tuyaux à fluides et à air, au moins une fois par semaine. Si votre tuyau ne comporte pas d'étiquette qui précise la résistance électrique maximum, prenez contact avec le fournisseur de tuyaux ou la fabricant pour avoir les limites de résistance maximum. Utilisez un mètre de résistance de la gamme appropriée pour votre tuyau et vérifiez la résistance. Si celle-ci dépasse les limites recommandées, remplacez le tuyau immédiatement. Un tuyau sans mise à la terre ou avec une mise à la terre incorrecte peut entraîner des risques pour votre système. Lisez aussi **LES RISQUES D'INCENDIE OU D'EXPLOSION**.

1. **Pulvérisateur:** Brancher le cordon d'alimentation ou la rallonge qui doivent être équipés d'une prise à 3 fiches en bon état, dans une prise de courant convenablement mis à la terre. Ne pas utiliser d'adaptateur. Toutes les rallonges doivent avoir 3 fils et être prévues pour 15 ampères.
2. **Pistolet:** Réaliser la mise à la terre en le raccordant à une tuyau flexible et à une pulvérisateur déjà convenablement reliés à la terre.
3. **Tuyaux flexibles:** Afin d'assurer la continuité de la mise à la terre, n'utiliser que des tuyaux comportant une mise à la terre et ayant une longueur maximum combinée de 150 m (1500 pieds). Se reporter également au paragraphe, "**Continuité du circuit de mis à la terre des tuyaux**".
4. **Réceptacle d'alimentation:** observer le code ou les réglementations locales.
5. **Objets, matériel ou surfaces recevant la pulvérisation:** observer le code ou les réglementations locales.
6. **Tous le seaux de solvant** utilisés pour le rinçage: observer le code ou les réglementations locales. *N'utiliser que des seaux métallique* conducteurs de l'électricité. Ne pas mettre le seau sur une surface non conductrice comme sur du papier ou du carton car cela interromprait la continuité de la mise à la terre.
7. **Pour conserver la continuité de la mise à la terre quand on rince le matériel ou quand on libère la pression,** toujours maintenir une partie métallique du pistolet fermement appuyée contre le côté d'un seau *en métal* puis appuyer sur la détente du pistolet.

Mesures de sécurité concernant le rinçage

Pour réduire les risques de blessures par pénétration de la peau et les risques dus aux étincelles d'électricité statique ou aux éclaboussures, observe la marche à suivre pour le rinçage donnée à la page 13 de ce manuel.

ADVERTENCIA

**EL ROCIADO A ALTA PRESION PUEDE CAUSAR GRAVES LESIONES.
SOLO PARA USO PROFESIONAL. RESPECTE LOS AVISOS DE ADVERTENCIA.
Lea y entienda todo el manual de instrucciones antes de manejar el equipo.**

PELIGRO DE INYECCION DE FLUIDO

Seguridad general

Este equipo genera un fluido a una presión muy alta. El rociado de la pistola, los escapes de fluido o roturas de los componentes pueden inyectar fluido en la piel y el cuerpo y causar lesiones extremadamente graves, incluyendo a veces la necesidad de amputación. También, el fluido inyectado o salpicado en los ojos puede causar graves daños.

NUNCA apuntar la pistola hacia alguien o alguna parte del cuerpo. NUNCA colocar la mano o los dedos encima de la boquilla. NUNCA tratar de "hacer retornar la pintura"; este NO es un sistema de rociado de aire.

SIEMPRE tener colocado el protector de la boquilla en la pistola mientras se está pulverizando.

SIEMPRE seguir el **procedimiento de descarga de presión**, dado más abajo, *antes* de limpiar o sacar la boquilla o de dar servicio a cualquier del sistema.

NUNCA tratar de parar o desviar los escapes con la mano o el cuerpo.

Asegurar que todos los aparatos de seguridad del equipo están funcionando bien antes de cada uso.

Tratamiento médico

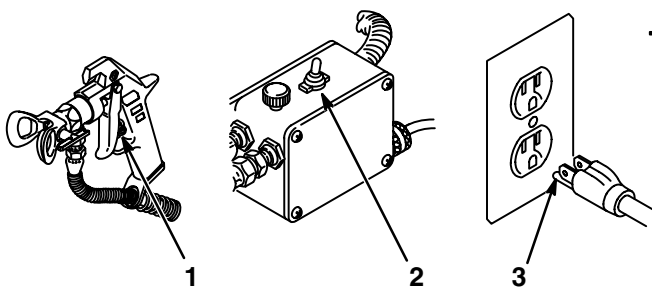
Si pareciera que un poco de fluido penetró la piel, conseguir **TRATAMIENTO MEDICO DE URGENCIA DE INMEDIATO. NO TRATAR LA HERIDA COMO UN SIMPLE CORTE.** Decir al médico exactamente cual fluido fue.

Aviso al médico: Si se llega a inyectar este fluido en la piel se causa una lesión traumática. **Es importante tratar quirúrgicamente la lesión a la brevedad posible. No demorar el tratamiento para investigar la toxicidad. La toxicidad es algo de sumar importancia en algunas pinturas exóticas cuando se inyectan directamente al torrente sanguíneo. Será conveniente consultar a un especialista en cirugía plástica o reconstructiva de las manos.**

PROCEDIMIENTO DE DESCARGA DE PRESION

Para reducir el riesgo de sufrir graves lesiones corporales, incluyendo la inyección de fluidos, salpicaduras en los ojos o la piel, o lesiones causadas por piezas en movimiento, siempre seguir este procedimiento al apagar la máquina pulverizadora, al revisar, ajustar o limpiar el sistema, o al cambiar las boquillas.

1. Enganchar el pestillo de seguridad de la pistola.
2. Mover el interruptor de parada del motor a OFF.
3. Desenchufar el cordón eléctrico.
4. Desenganchar el pestillo de seguridad de la pistola. Mantener una parte metálica de la pistola firmemente contra el lado de un balde de metal y activar la pistola para descargar la presión.



Aparatos de seguridad de la pistola pulverizadora

Asegurar que todos los aparatos protectores de la pistola están funcionando bien antes de cada uso. No sacar ni modificar ninguna pieza de la pistola pues podría causar el malfuncionamiento de la misma con las consiguientes lesiones personales.

Pestillo de seguridad

Cada vez que se deje de pulverizar, aunque sea por un breve momento, siempre colocar el pestillo de seguridad en la posición "cerrada", lo que deja la pistola inoperante. El no hacerlo puede llevar al disparo imprevisto de la pistola.

Difusor

El difusor de la pistola dispersa el chorro pulverizado y reduce el riesgo de inyección cuando no está instalada la boquilla. Revisar con regularidad el funcionamiento del difusor. Seguir el **procedimiento de descarga de presión**, dado más abajo, y después sacar la boquilla. Apuntar la pistola a un balde metálico, sosteniéndola bien firme contra él. Utilizando la presión más bajo posible, disparar la pistola. Si el fluido emitido *no sale disperso* en un chorro irregular, reemplazar de inmediato el difusor.

Protector de la boquilla

SIEMPRE tener el protector de la boquilla colocado en la pistola mientras se está pulverizando. Este protector llama la atención contra el peligro de inyección y ayuda a reducir, pero no evita, la colocación accidental de los dedos o cualquier otra parte del cuerpo cerca de la boquilla.

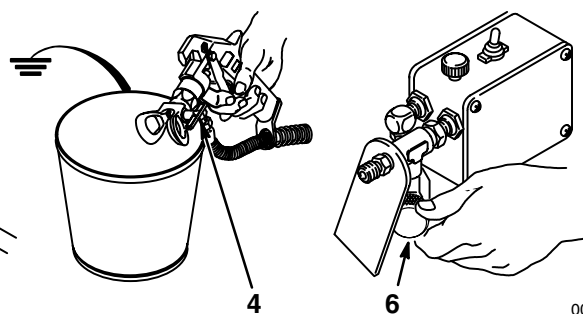
Seguridad de la boquilla pulverizadora

Tener mucho cuidado al limpiar o cambiar las boquillas. Si llegara a obstruirse mientras está pulverizando, enganchar el pestillo de la pistola de inmediato. SIEMPRE seguir el **procedimiento de descarga de presión** y después sacar la boquilla para limpiarla.

NUNCA limpiar la acumulación de pintura alrededor de la boquilla antes de que se haya descargado por completo la presión y el pestillo esté enganchado.

5. Volver a enganchar el pestillo de seguridad de la pistola.
6. Abrir la válvula de alivio de presión y dejarla abierta hasta que se esté nuevamente listo para pulverizar.

Si se sospecha que la boquilla o la manguera esté completamente obstruida, o que no se ha descargado por completo la presión después de haber seguido el procedimiento anterior, aflojar MUY LENTAMENTE un adaptador de extremo de la manguera o la tuerca de retención del protector de la punta y descargar gradualmente la presión.



PELIGRO POR MAL USO DEL EQUIPO

Seguridad general

Cualquier mal uso del equipo pulverizador o los accesorios, tal como sobre presurización, modificación de piezas, uso de materiales y productos químicos incompatibles, o utilización de piezas dañadas o desgastadas, puede hacer que se rompan y causen la inyección de fluido u otras lesiones corporales graves, incendio, explosión o daños a la propiedad.

Siempre usar gafas, guantes, vestimentas protectoras y un respiradero, tal como recomiendan los fabricantes del fluido y del solvente.

SEGURIDAD EN EL USO DE LAS MANGUERAS

El fluido que escapa a alta presión por las mangueras puede ser muy peligroso. Si en la manguera se desarrolla un escape, una rotura o rajadura debido a cualquier tipo de desgaste, daño o maltrato, el chorro a alta presión emitido por allí puede causar una lesión por inyección u otras lesiones corporales graves o daños a la propiedad.

¡TODAS LAS MANGUERAS PARA FLUIDOS TIENEN QUE TENER GUARDAS DE RESORTE EN AMBOS EXTREMOS!

Estas protegen las mangueras contra dobleces o retorceduras en los acoplamientos o cerca de ellos, los que podrían traducirse en roturas de la manguera.

Antes de usarlas, APRETAR bien firmes todas las conexiones. El fluido a alta presión puede desalojar un acoplamiento suelto o dejar que pro él escape un chorro a alta presión.

NUNCA usar una manguera que está dañada. Siempre revisarla en busca de cortaduras, escapes, abrasión, cubierta abultada, o acoplamientos sueltos o dañados. Si llegara a encontrarse cualquiera de estas condiciones, reemplazar de inmediato la manguera. NO intentar reacoplar una manguera de alta presión o enmendarla con cinta adhesiva u otro material similar. Una manguera que ha sido remendada no aguante el fluido al alta presión.

PELIGRO DE INCENDIO O EXPLOSION

El flujo a alta velocidad del fluido al pasar por la bomba y manguera crea electricidad estática. Si todas las partes del equipo pulverizador no tienen buena tierra, pueden ocurrir chispas, convirtiéndolo al sistema en algo peligroso. También, pueden producirse chispas al enchufar o desenchufar el cordón eléctrico o al usar un motor de gasolina. Estas chispas pueden inflamar los vapores de los solventes y el chorro de fluido pulverizado, partículas de polvo y otras sustancias inflamables, sea al aire libre o bajo techo, lo que podría causar una explosión o incendio y graves lesiones corporales y daños a la propiedad. Enchufar siempre la pulverizadora a un tomacorriente que se encuentre a por lo menos 6 m (20 pies) de la máquina y del área que se va a rociar. No enchufar o desenchufar ningún cordón eléctrico en el lugar donde se está rociando cuando todavía exista la posibilidad de que queden vapores inflamables en el aire.

Si ocurre una chispa de electricidad estática o incluso un ligero choque eléctrico mientras se usa el equipo, DEJAR DE PULVERIZAR DE INMEDIATO. Revisar todo el sistema en busca de una tierra apropiada. No usar de nuevo el sistema hasta haber identificado y solucionado el problema.

Puesta a tierra

Para reducir el riesgo de chispas estáticas, conectar a tierra la pulverizadora y todo el otro equipo de pulverizar que se use o se encuentre en el lugar que se va a rociar. CONSULTAR el código eléctrico de la localidad para las instrucciones sobre las conexiones a tierra exigidas para la zona y tipo de equipo. ASEGURAR de conectar a tierra todo este equipo pulverizador:

Presión del sistema

Esta pulverizadora puede desarrollar 175 barías (2500 psi) de *PRESION DE TRABAJO MAXIMA*. Asegurar que todo el equipo pulverizador y sus accesorios tienen la capacidad para aguantar la presión máxima de trabajo de ningún componente o accesorio de este sistema.

Compatibilidad de fluido

Siempre leer las instrucciones del fabricante del fluido y solvente antes de usarlos en esta pulverizadora en la página 31.

MANEJAR Y PASAR CUIDADOSAMENTE LAS MANGUERAS. No tirar de las mangueras para mover el equipo. No usar fluidos o solventes que sean incompatibles con el tubo interno y la cubierta de la manguera. NO exponer las mangueras a temperaturas sobre 82° C (180°F) o bajo -40° C (-40° F).

Continuidad del circuito de puesta a tierra de la manguera

La continuidad del circuito de puesta a tierra apropiado es esencial para mantener conectado a tierra el sistema pulverizador. Es indispensable revisar la resistencia eléctrica máxima de las mangueras de aire y de fluido por lo menos una vez a la semana. Si la manguera no tiene una etiqueta en la cual se especifica la resistencia eléctrica máxima, ponerse en contacto con el proveedor o fabricante de la manguera para la información sobre los límites de resistencia. Usar un metro de resistencia en la gama apropiada para comprobar la resistencia; si excede los lites recomendados, reemplazarla de inmediato. Es muy arriesgado tener una manguera sin puesta a tierra o con la puesta a tierra en malas condiciones. Leer también la información sobre **RIESGO DE INCENDIO O EXPLOSION**, más arriba.

1. *Pulverizadora*: enchufar el cordón eléctrico, o cable estensor, cada uno con un enchuf de tres patas en buen estado, a un tomacorriente con puesta a tierra apropiado. No usar un adaptador. Todos los cables extensores tienen que tener tres hilos y una capacidad de 15 amperios.
2. *Mangueras para fluidos*: usar solamente mangueras con puesta a tierra de una longitud combinada de 150 m (500 pies), para asegurar buena continuidad a tierra. Referirse también al párrafo sobre **continuidad a tierra de la manguera**.
3. *Pistola*: hacer la puesta a tierra conectándola a una manguera de fluido y pulverizadora bien conectadas a tierra.
4. *Suministrar un recipiente*: de acuerdo al código local. Usar *solamente baldes de metal*, que sean conductivos. No colocar el balde en una superficie no conductiva, como papel o cartón, que interrumpe la continuidad a tierra.
5. *Objeto que se está rociando*: de conformidad con el código local.
6. *Todos los baldes de solvente* usados durante el lavado, de conformidad con el código local.
7. *Para mantener la continuidad a tierra durante el lavado o descarga de presión*, siempre apoyar una parte metálica de la pistola bien firme contra el costado de *balde de metal*, después apretar el gatillo.

Seguridad durante el lavado

Para reducir el riesgo de que se inyecte o salpique fluido en la piel, o que ocurra una descarga de electricidad estática, siempre seguir las INSTRUCCIONES PARA EL LAVADO, dadas en la página 13. Seguir el **procedimiento de descarga de presión** en la página 6, y quitar la *boquilla de metal* y usar la presión más baja posible de fluido durante el lavado.

SETUP

WARNING

To reduce the risk of serious bodily injury caused by static sparking, fluid injection or over-pressurization and rupture of the hose or gun:

1. Ground the sprayer and all objects being sprayed. Read **FIRE OR EXPLOSION HAZARD** on page 3.
2. Do not operate the spray gun without a tip guard in place.
3. Be sure all parts added to the sprayer are rated for at least 2500 psi (172 bar) Maximum Working Pressure.

CAUTION

To avoid damaging the pressure control, follow these precautions.

1. Always use flexible, grounded hose at least 50 feet (15 m) long.
2. Never use a wire braid hose; it is too rigid to act as a pulsation dampener.
3. Never install any shutoff device between the pressure control and the first 50 feet (15 m) of hose. See Fig 1.

1. **Connect a 50 foot (15 m) spray hose and a gun to the 1/4 npsm(m) fluid outlet nipple.** For more flexible gun movement, install a 3 foot (0.9 m), 3/16 inch ID diameter hose between the gun and main spray hose.
DO NOT use thread sealant on the hose and gun connections. DO NOT install the spray tip until the system is primed.
2. **Fill the packing nut/wet-cup** 1/3 full with Throat Seal Liquid, supplied. Keep it filled to help extend the life of the packings and the pump.
3. **Check the electrical service.** It must be 120 VAC, 60 Hz, 15 Amp (minimum). The electrical outlet must be properly grounded.
DO NOT remove the grounding prong of the plug, and do not use an adapter.
Extension cords up to 200 feet (61 m) of 3 wire, 12 gauge (minimum) can be used. Longer lengths will affect sprayer performance. Use more spray hose to reach the spray area, if needed.
4. **Plug the power supply cord** into an outlet located at least 20 feet (6 m) from the spray area. This reduces the chance of a spark igniting the spray vapors or dust particles.
5. **Flush the pump** to remove the lightweight test oil which was left in it after factory testing. See **FLUSHING GUIDELINES** on page 12.
6. **Prepare the paint** according to the instructions on the paint can. Strain the paint through a fine nylon mesh bag to remove particles that could clog the spray tip.

SETUP

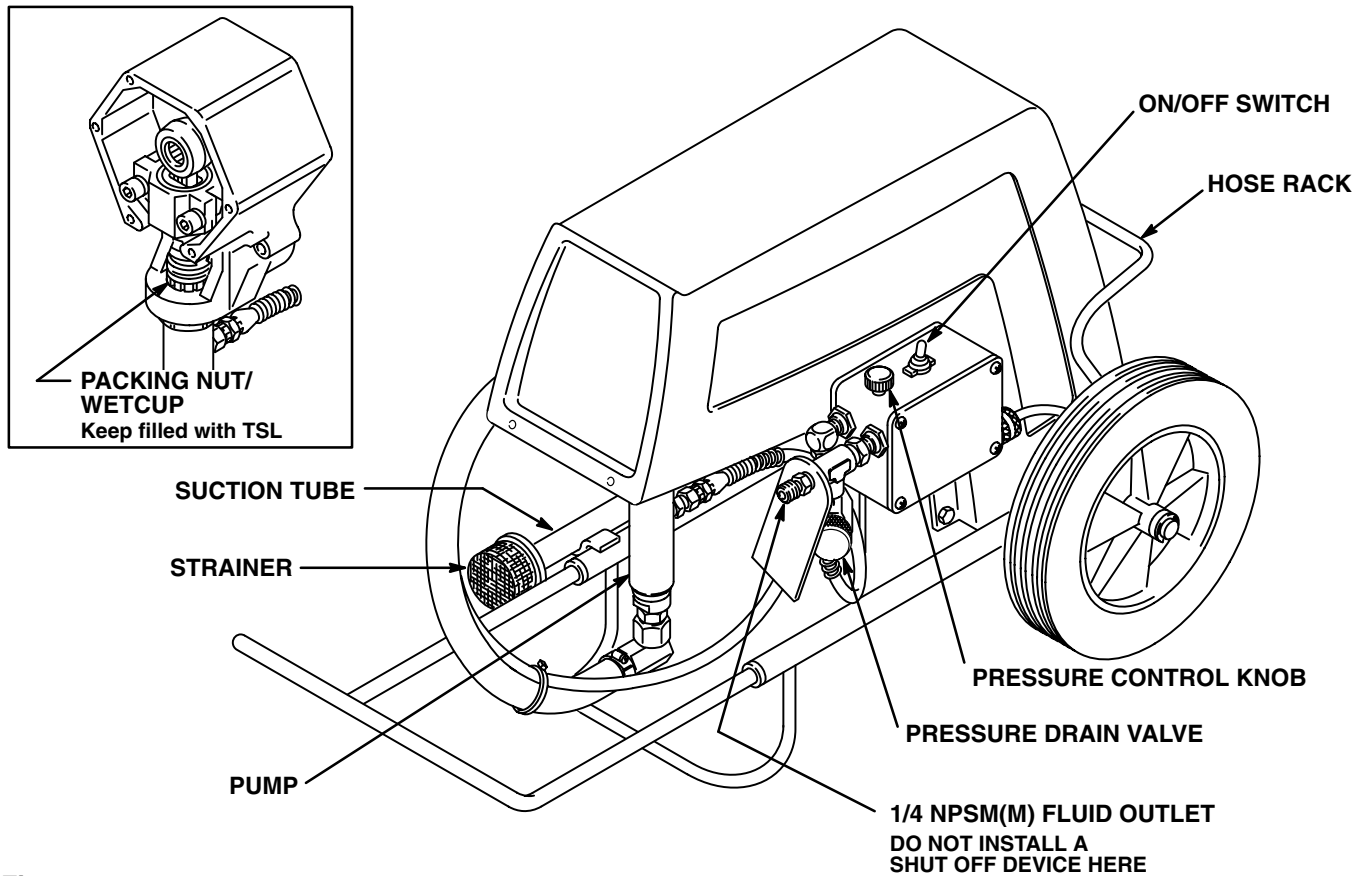


Fig 1

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STARTUP

WARNING

Pressure Relief Procedure

To reduce the risk of serious bodily injury, fluid injection, splashing in the eyes or on the skin, injury from moving parts or electric shock, follow this procedure whenever you shut off the sprayer, check or service any part of the spray system, install, clean or change spray tips, and or stop the sprayer.

1. Engage the gun safety latch.
2. Turn the ON/OFF switch to OFF.
3. Unplug the power supply cord.
4. Disengage the gun safety latch. Hold a metal part of the gun firmly to the side of a grounded metal pail, and trigger the gun to relieve pressure.

5. Engage the gun safety latch.
6. Open the pressure drain valve, having a container ready to catch the drainage. Leave the pressure drain valve open until you use the sprayer again.

*If you suspect that the spray tip or hose is completely clogged, or that pressure has not been fully relieved after following the steps above, **VERY SLOWLY** loosen the tip guard retaining nut or hose end coupling and relieve pressure gradually. Then loosen the nut completely.*

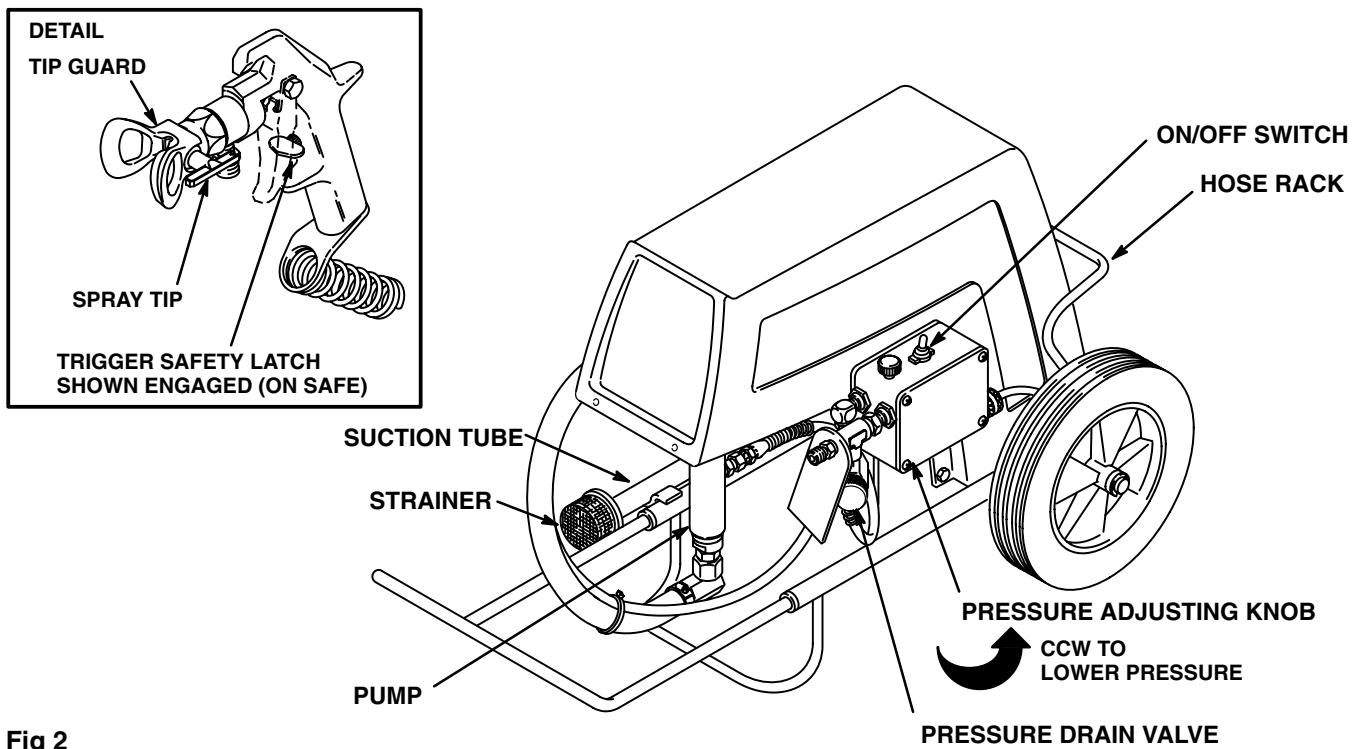


Fig 2

1. Prime the sprayer with paint.

- a. Close the pressure drain valve.
- b. Don't install the spray tip yet!
- c. Put the suction tube into the paint.
- d. Turn the pressure adjusting knob counter-clockwise to lower the pressure.
- e. Disengage the gun safety latch.
- f. Hold a metal part of the gun firmly against a grounded metal pail. See Fig 3. Squeeze the trigger, turn the ON/OFF switch to ON, and slowly increase the pressure until the sprayer starts. Keep the gun triggered until all air is forced out of the system and the paint flows freely from the gun. Release the trigger and engage the safety latch.

NOTE: If the pump is hard to prime, open the valve. When fluid comes from the valve, close it. Disengage the gun safety latch repeat Step 1f.

- g. Check all fluid connections for leaks. Follow the **Pressure Relief Procedure Warning** on page 9 before tightening any loose connections.

2. Install the spray tip and tip guard. Be sure the gun safety latch is engaged. Follow the instructions supplied with the tip guard.

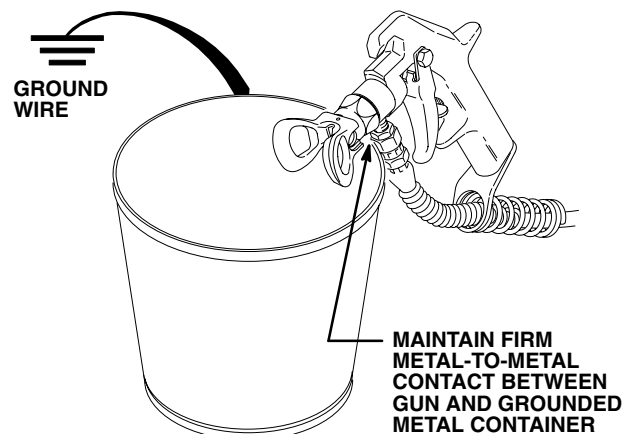


Fig 3

0664

STARTUP

3. **Adjusting the spray pattern** (See Fig 4.)
 - a. Increase the pressure just until spray from the gun is completely atomized. To avoid excessive overspray and fogging, to decrease tip wear and to extend the life of the sprayer, use the lowest pressure needed for good atomization.
 - b. If more coverage is needed, use a larger tip rather than increasing the pressure.
 - c. To adjust the spray pattern direction, engage the gun safety latch. Loosen the retaining nut. Position the tip guard horizontally for a horizontal pattern or vertically for a vertical pattern. Tighten the retaining nut.



Fig 4

WARNING

To reduce the risk of serious bodily injury from injection, use extreme caution when cleaning or changing spray tips. If the spray tip clogs while spraying, engage the gun safety latch immediately, then follow Step 4.

NEVER wipe off buildup around the spray tip until pressure is fully relieved and the gun safety latch is engaged.

4. Cleaning a clogged tip

- a. **Clean the front of the tip frequently** during operation. Follow the **Pressure Relief Procedure Warning** on page 9. Use a solvent-soaked brush to clean the tip.
- b. **If the spray tip clogs**, engage the gun safety latch, shutoff and unplug the sprayer, and open the pressure drain valve to relieve pressure. Loosen the tip guard retaining nut **slowly** to relieve any additional pressure, and then remove the spray tip to clean it. See the instructions supplied with your spray tip for cleaning clogs.

MAINTENANCE

1. **Check the packing nut/wet-cup daily.** Relieve pressure. Keep the wet-cup 1/3 full of Throat Seal Liquid to help prevent fluid buildup on the piston rod and premature wear of packings. Tighten the packing just enough to stop leakage. Overtightening may cause binding and excessive packing wear. See Fig 5.
2. **Flush the sprayer at the end of each work day** and fill it with mineral spirits to help prevent pump corrosion and freezing. See **FLUSHING GUIDELINES** on page 12.

CAUTION

Never leave water or any paint in the sprayer overnight to prevent pump corrosion and to prevent the fluid from freezing in the pump and pressure control which can cause loss of pressure, stalling or serious sprayer damage.

Always use mineral spirits for the final flush, relieve pressure, and leave the mineral spirits in the sprayer.

3. **For very short shutoff periods**, leave the suction tube in the paint, relieve pressure, unplug the sprayer, and clean the spray tip.
4. **Coil the hose** around the top of the shroud and rest it on top of the hose rack when storing it, even for overnight, to help protect the hose from kinking or damage.

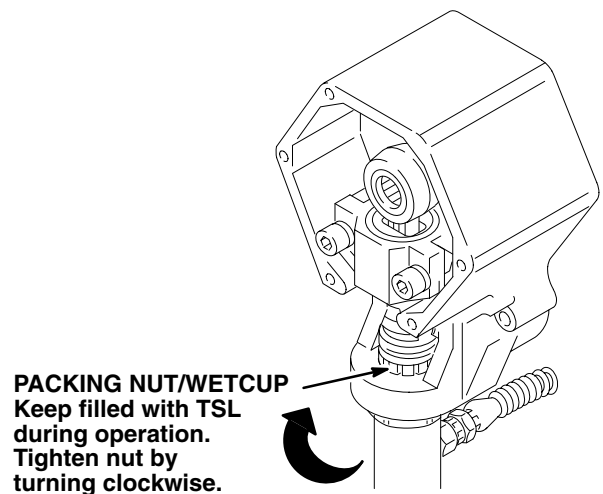


Fig 5

FLUSHING GUIDELINES

When to flush

CAUTION

NEVER leave water in the sprayer if there is the slightest chance it could freeze. Flush out the water with mineral spirits. If water freezes in the pressure control tube, it prevents the sprayer from being started and causes serious damage to the pressure control.

1. **New Sprayer.** Flush out the test oil.
Before using water-base paint, flush with mineral spirits, followed by a soapy water flush, and then a clean water flush.
Before using oil-base paint, flush with mineral spirits, only.
2. **Changing Colors.** Flush with a compatible solvent such as mineral spirits or water.
3. **Changing from water-base to oil-base paint.** Flush with warm, soapy water, and then flush with mineral spirits.
4. **Changing from oil-base to water-base paint.** Flush with mineral spirits, followed by warm, soapy water, and then a clean water flush.
5. **Storage.** Flush, leave the pump, hose and gun filled with mineral spirits. Shut off the sprayer and open the pressure drain valve to relieve pressure.
Water-base paint: Flush with water, and then mineral spirits.
Oil-base paint: Flush with mineral spirits.
6. **Startup after storage.**
Before using water-base paint, flush with soapy water, and then with clean water.
When using oil-based paint, with the paint to be sprayed.

How to flush

1. Relieve pressure. See page 9.
2. Close the pressure drain valve. See Fig 6.

3. Pour one-half gallon (2 liters) of compatible solvent into a grounded metal pail. Put the suction tube in the pail.
4. Remove the spray tip.

WARNING

To reduce the risk of static sparking and splashing when flushing, always remove the spray tip from the gun, and hold a metal part of the gun firmly to the side of a grounded metal pail. See Fig 7.

5. Disengage the gun safety latch. Start the sprayer, trigger the gun, and slowly turn the pressure adjusting knob clockwise just until the pump starts. Keep the gun triggered until clean solvent comes from the nozzle. Release the trigger and engage the gun safety latch.
6. Check all fluid connections for leaks. Relieve pressure before tightening the connections. Start the sprayer.
7. Remove the suction tube from the pail. Disengage the gun safety latch. Trigger the gun to force solvent from the hose. Do not run the pump dry for more than 30 seconds to avoid damaging the pump packings! Relieve pressure.
8. Leave the pressure drain valve open until you use the sprayer again.
9. If you flushed with mineral spirits and are going to use a water-base paint, flush with soapy water followed by a clean water flush. Relieve pressure.

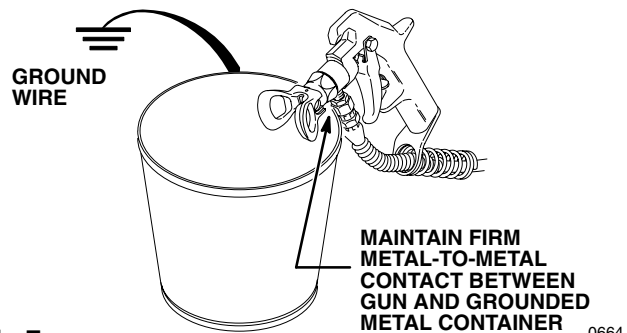


Fig 7

APPLICATION METHODS

Hold the gun perpendicular to the surface. Keep the gun at an even 12 to 14 in. (300–356 mm) from the surface you are spraying. See Fig 8.

Begin moving the gun horizontally at a steady rate. Start the spray stroke off the target surface and pull the trigger as the gun is moving. Then, while the gun is still moving, and as you approach the other edge of the surface, release the trigger. This method avoids excess paint buildup at the end of each stroke.

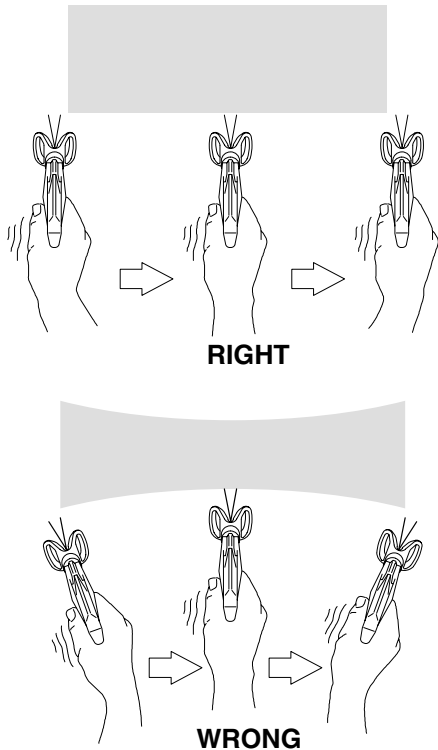


Fig 8 0072

Move the gun at a speed that provides a full, wet coating to be applied without runs or sags. Lap each stroke 50% over the previous stroke to produce a uniform paint thickness. Spray in a uniform pattern from right to left and then left to right for a professional finish. See Fig 9.

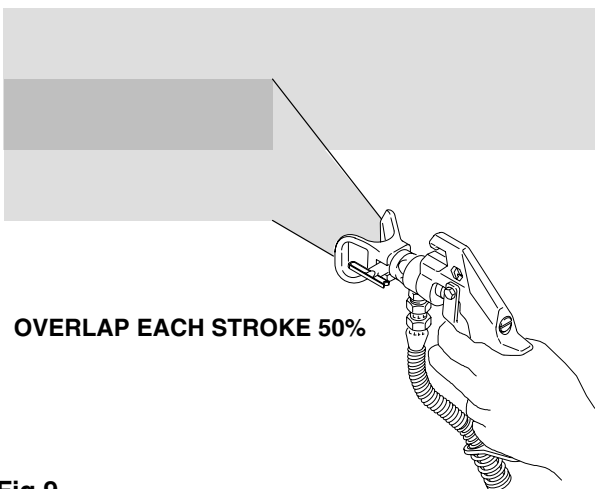


Fig 9 0672

The best way to control the rate of coverage is with the gun tip size. A small tip orifice applies less paint. A larger tip orifice applies more paint. The width of the pattern depends on the fan pattern of the tip you choose.

Do not try to increase coverage by increasing the fluid pressure! Use the lowest pressure needed for good results. This prolongs the life of your sprayer and reduces paint lost by overspray.

For interior corners aim the gun toward the center of the corner to be sprayed. By dividing the spray pattern this way, the edges on both sides are sprayed evenly. See Fig 10.

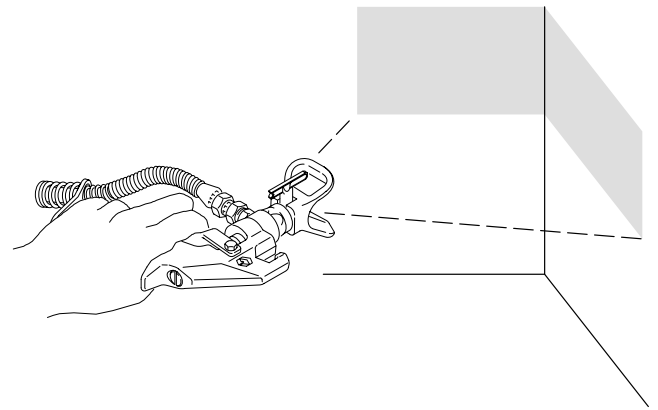


Fig 10 0673

If there is a wind, angle the spray pattern into the wind to minimize drifting. Paint from the ground to the roof.

Shrubs. Tie back shrubs with rope and stakes. Cover them with a dropcloth as the painter approaches the area. Remove the dropcloth as soon as the area is painted to prevent damage.

Concrete walks. If the walkways will be walked on, cover them with a canvas dropcloth to avoid slipping. Otherwise a plastic cloth can be used.

Electrical outlets and lamps. Protect electrical outlets with masking tape. Cover lamps with plastic bags secured with masking tape.

Nearby objects. Move portable objects upwind of the surface to be sprayed. If there is a nearby home, make a protective barrier by hanging plastic dropcloths between two long poles.

TROUBLESHOOTING GUIDE

WARNING

Pressure Relief Procedure

To reduce the risk of serious bodily injury, including fluid injection, splashing in the eyes or on the skin, or injury from moving parts, always follow this procedure when you shut off the sprayer, when checking, adjusting or cleaning the system, and when changing spray tips.

1. Engage the gun safety latch.
2. Turn the engine stop lever to OFF.
3. Unplug the power supply cord.

4. Disengage the gun safety latch. Hold a metal part of the gun firmly to the side of a grounded metal pail, and trigger the gun.
5. Engage the gun safety latch.
6. Open the fluid pressure drain valve and leave it open until you start the sprayer again.

*If you suspect the hose or spray tip is completely clogged or that pressure is not fully relieved after following the steps above, **VERY SLOWLY** loosen the tip guard retaining nut of hose end coupling to relieve pressure gradually. Now clear the tip or hose.*

Check everything in the chart before disassembling the sprayer.

PROBLEM	CAUSE	SOLUTION
Electric motor won't run	Power cord or extension cord unplugged, or damaged, or building circuit breaker or fuse has tripped	Check, reset or replace.
	Motor overload switch ¹ has opened	Unplug power supply cord, relieve pressure, allow motor to cool, decrease pressure.
	Pressure setting too low	Increase pressure.
	Pressure control frozen or damaged by over-pressurization	Try to thaw ² , or replace pressure control.
Electric motor stops while spraying	Power cord or extension cord unplugged, or damaged, or building circuit or fuse is blown	Check, reset or replace.
	Motor overload switch* has opened	Unplug the power supply cord, relieve pressure, allow motor to cool, clear motor air passages of dirt and overspray; decrease pressure.
	Pressure setting too low	Increase pressure.
	Spray tip or plugged	Remove and clean.
	Wrong type extension cord	Use maximum 200 foot (61 m), 3 wires, 12 gauge, grounded extension cord.
Electric motor runs, but low paint output or no paint output, and pump is not stroking See the PROBLEM , "Not enough paint pressure", on page 15, also	Piston ball check not seating	Service the pump. See page 16.
	Piston packings worn or damaged	Replace the piston. See page 16.
	Intake valve ball check not seating	Service the pump. See page 16.
	Pump is frozen	Thaw ²
	Pressure control frozen or damaged by overpressurization ³	Try to thaw ² , or replace pressure control.
	Drive assembly damaged	Replace the drive housing. See page 22.
	Displacement pump worn or damaged	Replace the displacement pump. See page 16.
	Sprayer is not primed.	Prime the sprayer. See page 10.
Electric motor labors when starting, and trips building circuit breaker or fuse	Circuit board has failed	Replace the circuit board. See page 18.
	Motor capacitor has failed	Replace the capacitor. See page 23.

TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	SOLUTION
Paint leaks into wet-cup	Throat packings are worn or damaged	Replace the packings. See page 16.
Excessive surging from spray gun	Spray tip or fluid filter is plugged	Disassemble and clean.
	Spray tip too big or worn	Change the spray tip.
	Paint too viscous	Thin the paint.
	Wrong type hose	Use minimum 50 ft (15 m), grounded, flexible hose (wire braid hose is unacceptable).
Not enough paint pressure	Pressure setting too low	Increase the pressure.
	Spray tip too big or worn	Change the spray tip.
	Pressure control frozen or damaged by overpressurization ³	Try to thaw ² , or replace the pressure control.
	Displacement pump worn or damaged	Replace the displacement pump. See page 16.
Tails or fingers in spray pattern	Pressure setting too low	Increase the pressure.
	Fluid outlet filter is dirty or clogged (if used)	Clean the filter. See page 12 or manual 307–273.
	Spray tip too big or worn	Change the spray tip.
	Fluid supply is low or empty	Refill and prime the pump. Check fluid supply often to prevent running the pump dry.
	Paint too viscous	Thin the paint.
	Wrong type hose	Use minimum 50 ft (15 m), grounded, flexible hose (wire braid hose is unacceptable).
Paint runs or sags	Spray tip too big or worn	Change the spray tip.
Spitting from gun	Air in fluid pump or hose	Check for loose connections at pump intake and tighten. Then prime the pump.
	Spray tip is partially clogged	Clear the tip. See page 11.
	Fluid supply is low or empty	Refill and prime the pump. Check fluid supply often to prevent running the pump dry.
Static sparking from the gun	Spray or work being sprayed is not properly grounded	Correct problem before continuing. Follow the warning section, FIRE OR EXPLOSION HAZARD on page 3.

¹ The electric motor has an over-temperature switch which automatically resets upon cooling. If it opens and the electric motor shuts itself off, unplug the power supply cord and let the sprayer cool for 30 to 60 minutes. Always use the lowest pressure setting needed when spraying. Prevent overspray from restricting the motor air passages; check and clean often.

² Freezing results from failure to replace the water-base paint or flushing water with mineral spirits, and usually causes permanent damage to the pressure control.

³ Over-pressurization results from (1) using less than 50 ft (15 m) of flexible spray hose, (2) from using a wire braid spray hose, (3) from adding a shutoff device between the pump outlet and the spray gun, (4) from attaching a spray hose to the pressure drain valve, or (5) from using a clogged or incorrectly assembled filter, if used.

DISPLACEMENT PUMP

WARNING

To reduce the risk of serious bodily injury, follow the **Pressure Relief Procedure Warning** on page 14 before checking or repairing any part of the spray system.

WARNING

Be sure the retaining spring (65) is completely in the connecting rod groove to prevent the pin (63) from working loose due to vibration. See Fig 11.

If the pin works loose, the pumping action could break parts. These parts could be projected through the air and result in serious bodily injury or pump or property damage.

Removing the Pump. See Fig 11.

NOTE: Refer to Fig 11 for this procedure.

1. Flush the sprayer. Relieve pressure.
2. Hold the intake valve (222) steady with a wrench and unscrew the swivel union (12).
3. Unscrew the hose (26).
4. Use a screwdriver to push the retaining spring (65) aside, and then push out the pin (63).
5. Loosen the locknut (31) and unscrew the pump (29).

3. Screw the pump into the drive housing (8) until it stops at the locknut (31). Unscrew the pump until the outlet fitting (30) faces straight back.
4. Torque the locknut (31) to 70 ft-lb (95 N.m).
5. Reassemble the remaining parts, in the reverse order of removal.

Disassembly. See Fig 14, except where noted.

1. Remove and disassemble the intake valve (222). If no further service is needed, reassemble the valve, using a new gasket (206*). Torque to 80 ft-lb (107 N.m). See Fig 11.
2. Remove the packing nut (221) and plug (201).
3. Tap the piston rod (223) down with a plastic mallet. Pull the rod out the bottom of the cylinder (216).
4. Remove the packings and glands from the throat of the cylinder (216).
5. Clamp the flats of the piston rod (223) in a vise. Unscrew the retaining nut (214). Unscrew the piston valve (224) from the rod. Remove all parts from the piston.

Reassembly Notes

- A. Packing Repair Kit 222-587 is available. Parts included in the kit are marked with an asterisk (*) in the text and drawings.
- B. Clean all parts thoroughly. Check the outside of the piston rod (223) and the inside of the cylinder (216) for scoring or scratches, which prevent the packings from sealing properly. Replace all worn parts.
- C. Alternate polyethylene and leather packings as shown in Fig 14. Notice that:
the lips of the throat v-packings face down;
the lips of the piston V-packings face up;
the lips of the U-cup seal (205) face down.
Incorrect installation damages the packings and results in pump leakage.
- D. Coat the piston rod and the inside of the cylinder with lightweight oil and soak the packings in the oil before reassembling.

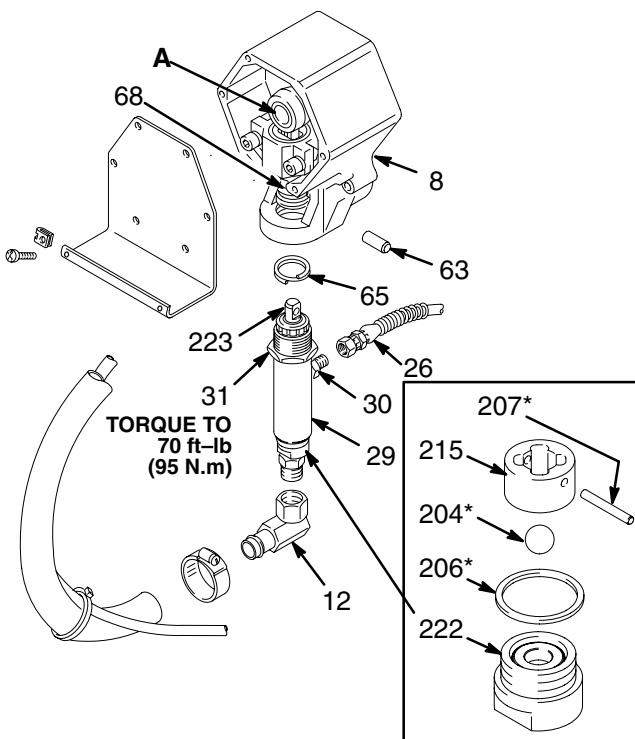


Fig 11

Reinstalling the Pump. See Fig 11.

1. Rotate the crankshaft (A) to fully lower the connecting rod (68). The pump piston rod (223) should protrude about 1 in. (25 mm) above the pump cylinder.
2. Screw the pump into the drive housing (8) until the pin holes are aligned with the pump coupling (64). Insert the pin (63). Position the spring (65) so it covers the ends of the pin.

DISPLACEMENT PUMP

Reassembly Procedure

1. Stack the backup washer (219*), U-cup seal (205*) *lips down*, and female gland (220*), alternate the polyethylene and leather v-packings (217*, 208*) *lips up*, and stack the male gland (213*) onto the piston valve (224). See Fig 14.
2. Tighten the packing retaining nut (214) against the gland (213) and torque to 3–4 in-lb (0.34 – 0.35 N.m). See Fig 12.

NOTE: NOTE THE ALIGNMENT of the piston (224) to the nut (214). Maintain this alignment throughout Steps 2, 3 and 4.

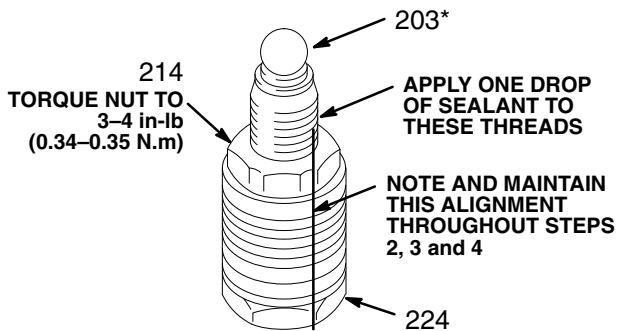


Fig 12

0082

3. Apply 1 drop only of sealant, supplied with the repair kit, to the piston valve threads. Place the small ball (203*) on the valve. See Fig 12. Hand tighten the valve into the rod (223) just until the nut contacts the rod. Place the flats of the displacement rod in a vise.

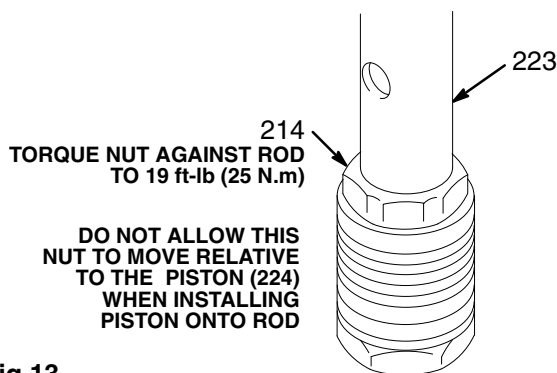


Fig 13

0083

4. Torque the nut (214) against the rod (223) to 19 ft-lb (25 N.m). Use two wrenches to maintain the alignment as mentioned in the **NOTE**. See Fig 13.
5. One at a time, stack these parts into the top of the cylinder (216): male gland (211*), alternately the polyethylene and leather v-packings (218*, 209*) *lips down*, female gland (212*). See Fig 14.

6. Loosely install the packing nut (221) and plug (201).
7. Insert the oiled piston rod (223) into the bottom of the cylinder.
8. Assemble the intake valve. Use a new gasket (206*). Screw the valve into the cylinder and tighten to 80 ft-lb (107 N.m). See Fig 14.
9. Screw down the cylinder locknut (31) until it is finger tight at the bottom of the external cylinder threads. See Fig 14.
10. Install the displacement pump on the sprayer. See page 16.

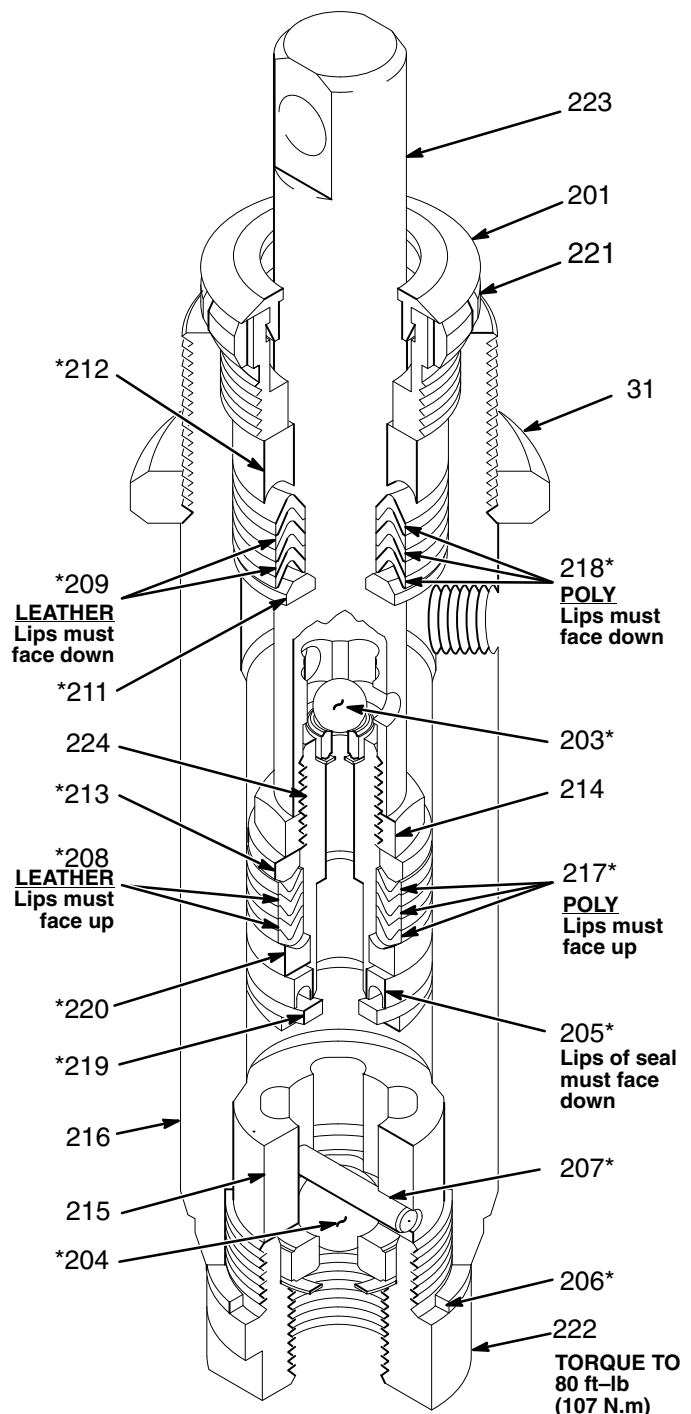


Fig 14

PRESSURE CONTROL & CIRCUIT BOARD

WARNING

To reduce the risk of serious bodily injury, always follow the **Pressure Relief Procedure Warning** on page 14 before checking or repairing any part of the spray system.

NOTE: A circuit board (13b) is not included with the new pressure control (18). However, it is included with a new motor and it can be ordered separately.

Order the correct circuit board! See the application information on page 26.

CAUTION

Do not allow the fittings (A) to move when removing the elbow (90) or the tee (89) from the pressure control to avoid altering the factory setting of the pressure control or permanently damage the pressure control.

Circuit Board Removal

1. Remove the pressure control cover (7). Pull the board (13b) out carefully, just far enough to reach the wire terminals. Disconnect the leads and remove the board. See Fig 16.

Pressure Control Removal

2. Disconnect the spray hose, the drain hose (41) and the pump hose (26) at the pressure control. Unscrew the tee (96).
3. Disconnect the motor leads (black and yellow/green). See Fig 16.
4. Remove the screws (88). See Fig 15.
5. Pull the pressure control (18) away from the conduit (13f) while carefully guiding the leads through the bushing (305), one at a time.
6. Remove the mounting bracket (70) and fittings (90,30). Install these parts on the new pressure control.

Pressure Control Installation

7. Guide the motor leads into the new pressure control.
8. Position the circuit board at the control so the wire connectors are at the top. Connect the leads to the board. Guide the leads into the pressure control, making sure they don't catch on anything. Slide the board into place.

Pressure Control Installation

9. Connect any other loose wires. See Fig 16.

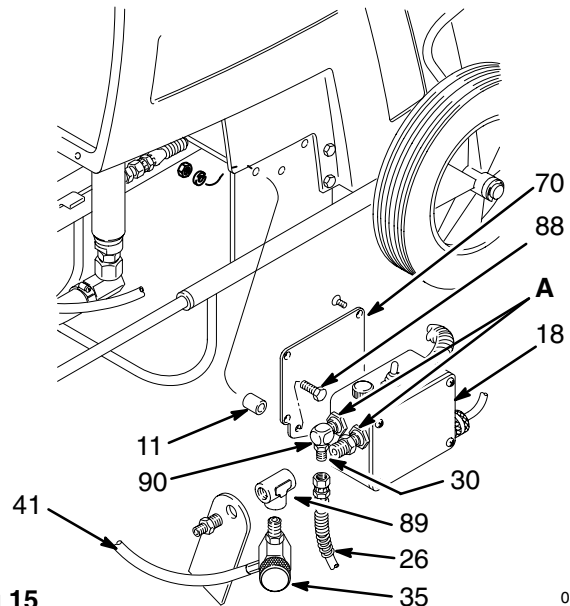


Fig 15

0881

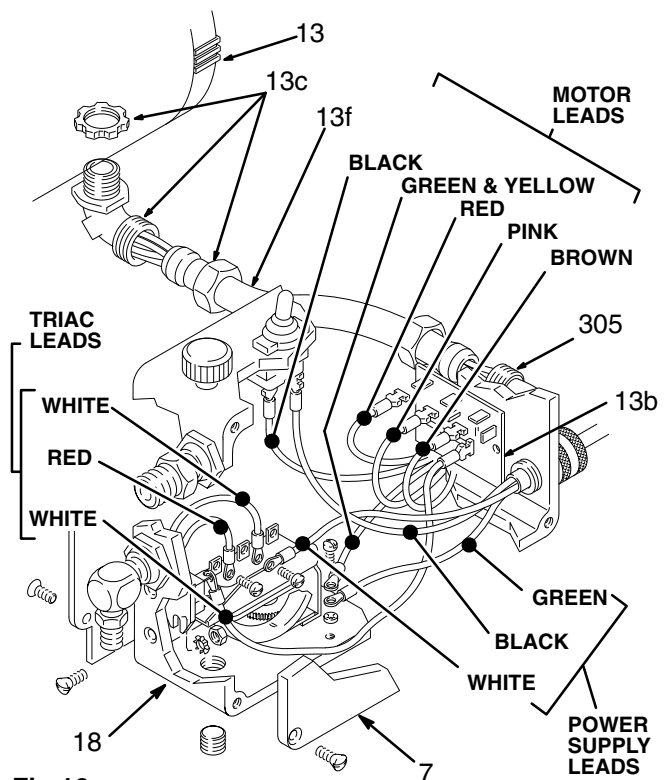


Fig 16

0749

10. Mount the pressure control on the cart. Connect the drain hose (41).

11. **Adjust the pressure control.** See page 19.

WARNING

Adjust the pressure control whenever a new or used pressure control or circuit board is installed to reduce the risk of overpressurization which can result in component rupture, fire or explosion. Improper adjustment may also prevent the sprayer from obtaining the maximum working pressure, resulting in poor sprayer performance.

PRESSURE CONTROL ADJUSTMENT

WARNING

USE EXTREME CAUTION WHEN PERFORMING THIS ADJUSTMENT PROCEDURE to reduce the risk of a fluid injection injury or other serious bodily injury, which can result from component rupture, electric shock, fire, explosion or moving parts.

This procedure sets the sprayer to 2500 psi (172 bar) **MAXIMUM WORKING PRESSURE**.

Perform this procedure whenever the micro-switch or pressure control assembly is reinstalled or replaced.

Improper calibration can cause the sprayer to overpressurize, resulting in component rupture, fire or explosion. It may also prevent the sprayer from obtaining the maximum working pressure, resulting in poor sprayer performance.

NEVER attempt to increase the sprayer's maximum working pressure by performing these adjustments in any other way. Normal operation of the sprayer at higher pressures may result in component rupture, fire or explosion. To perform this adjustment, however, the sprayer pressure must be *temporarily* increased above the normal working pressure.

Use a *new* 50 foot (15.2 m) spray hose, rated for at least 3000 psi (210 bar) **MAXIMUM WORKING PRESSURE**, when performing this procedure. A used, under-rated hose could develop a high pressure leak or rupture.

Service Tools Needed:

- **NEW** 50 foot, 3000 psi (minimum) grounded, flexible airless spray hose, p/n 223-541
- 0-5000 psi fluid-filled pressure gauge, 1/4 npt, p/n 102-814
- Tee, 1/4 npt(m), p/n 104-984
- Nipple, 1/4 npt x 1/4 npsm, p/n 162-453
- Swivel, 1/4 npt(m) x 1/4 npsm swivel p/n 156-823
- Needle valve, p/n 102-715 or 103-067
- 3/8 in. open end wrench
- Mineral spirits
- 5 gallon pail and water

Procedure

1. Relieve pressure. See page 14.
2. Remove the old spray hose. Install the new hardware and hose as shown in Fig 17. On the other end of the hose install the needle valve.

Procedure continued on page 20

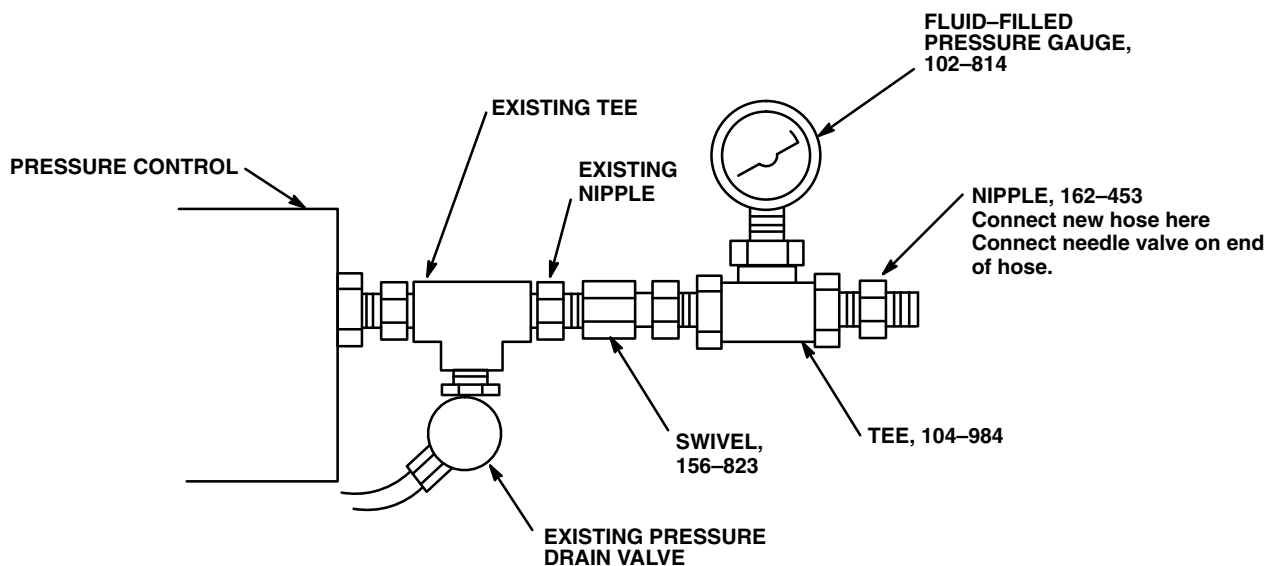


Fig 17

PRESSURE CONTROL ADJUSTMENT

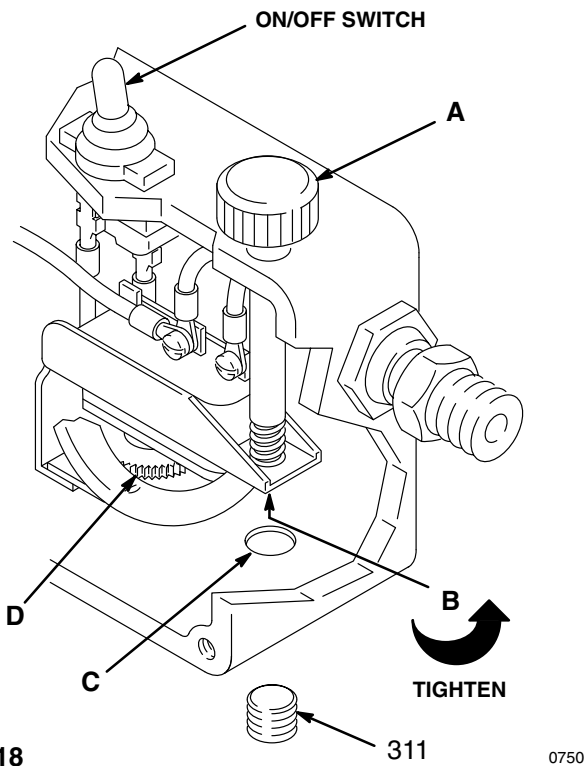


Fig 18 311 0750

NOTE: Refer to Fig 18 for the remainder of this procedure.

3. Remove the plug (311). See Fig 18.
4. Open the needle valve slightly. Turn the pressure adjusting knob (A) to the minimum setting.
5. Plug in the sprayer and turn the switch ON. Increase the pressure just enough to start the sprayer. Fully prime the hose, being sure to eliminate all air from the system.

NOTE: In Step 6, the slower the pressure is raised, the easier it is to note the exact stall pressure. Closing the needle valve quickly causes the pressure to rise too fast which gives a false reading.

6. Open the needle valve a just enough to allow the pump to run continuously, and turn the pressure adjusting knob to maximum. Very slowly start to close the needle valve. Observe the pressure at which the pump stalls, which should be approximately 2500 psi (172 bar).

If the pressure is lower than 2500 psi (172 bar):

Unplug the sprayer and relieve pressure. Insert the wrench through the hole (C) and loosen the adjustment nut (B) 1/8 turn or less. Repeat steps 5 and 6.

If the pressure is higher than 2500 psi (172 bar):

Unplug the sprayer and relieve pressure. Insert the wrench through the hole (C) and tighten the pressure adjustment nut (B) 1/8 turn or less. Repeat steps 5 and 6. Repeat this procedure until the proper stall pressure is obtained.

7. Now check to see at what pressure the sprayer starts to run again after it stalls. Plug in the sprayer, turn it on, close the needle valve, and set the pressure at maximum. Allow the sprayer to run until it stalls.

8. Open the needle valve very slowly while observing the pressure gauge. Check to see if the pressure drops to approximately 2100 psi (147 bar) before the sprayer starts again.

If the pressure is not 2100 psi (147 bar):

Shut off and unplug the sprayer, but do not relieve pressure. Turn the differential wheel (D) just one notch and repeat Steps 5 and 6. Check the pressure drop again, and repeat if necessary.

NOTE: If you adjust the differential wheel, recheck the stall pressure (steps 5 and 6) to be sure the it has not changed.

9. Relieve pressure. Flush the water out with mineral spirits. Relieve pressure. Install the plug (311). Remove the test equipment.

CONNECTING ROD and BEARING HOUSING

WARNING

To reduce the risk of serious bodily injury, always follow the **Pressure Relief Procedure Warning** on page 14 before checking or repairing any part of the spray system.

NOTE: Refer to Fig 19.

1. Remove the sprayer's shroud and the lift handle (2).
2. Remove pump as described on page 16.
3. Remove the two screws (51). Pull the bearing housing and connecting rod assembly (A) off the crankshaft (B).
4. Use a screwdriver to push the retaining spring (65) up. Remove the pin (63) and the coupling (64).
5. Clean and inspect the crankshaft (B). Wipe the crankshaft clean with a rag (don't use solvent). If the crankshaft is badly worn, replace the drive assembly (8). See page 22.
6. Clean and inspect the bearing housing (66) and connecting rod (68), including the needle bearing (C). Replace both parts if either is worn or damaged.
7. Clean the mating surfaces of the bearing and drive housings.

CAUTION

To extend the service life of the connecting rod bearing, lubricate it properly. After every 100 hours of operation, or whenever servicing the pump (whichever comes first), fill the cavity (E) in the connecting rod (68) with SAE non-detergent motor oil.

8. Coat the surfaces of the connecting rod and bearing (C) with SAE non-detergent motor oil. Liberally pack the needle bearing (C) with industrial grade, heavy duty, extreme pressure, lithium soap grease.

9. Assemble the connecting rod (68) and bearing housing (66). Assemble the coupling (64) to the connecting rod and install the pin (63). Push the spring (65) over both ends of the pin.
10. Align the connecting rod (68) with the crank (B) and push the bearing housing onto the drive housing (8).
11. Assemble the remaining parts.

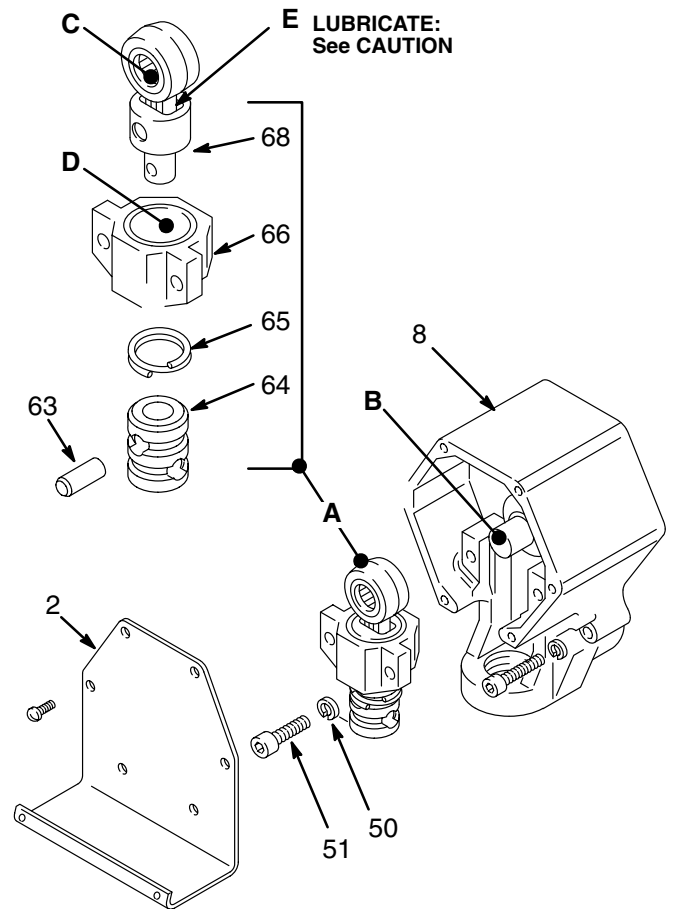


Fig 19

DRIVE HOUSING

WARNING

To reduce the risk of serious bodily injury, always follow the **Pressure Relief Procedure Warning** on page 14 before checking or repairing any part of the spray system.

NOTE: Refer to Fig 20 for this procedure.

1. Remove the sprayer's shroud and the lift handle (2).
2. Remove the displacement pump. See page 16.
3. Remove the two screws (51). Pull the bearing housing and connecting rod assembly (A) off the crankshaft (B).
4. Remove the screws (8b & 49) and pull the drive housing (C) off the motor housing (D).
5. Remove the screws (8c) and pull the motor housing (D) off the motor.
6. Clean the gear (60) and inspect it for wear or damage. Replace if necessary. To remove the gear, drive out the pin (61) and pull the gear off the motor shaft. Apply molybdenum disulfide spray lubricant to the gear, allow to dry, and then apply industrial grade, heavy duty, extreme pressure, lithium soap grease.
7. Install the new drive assembly.

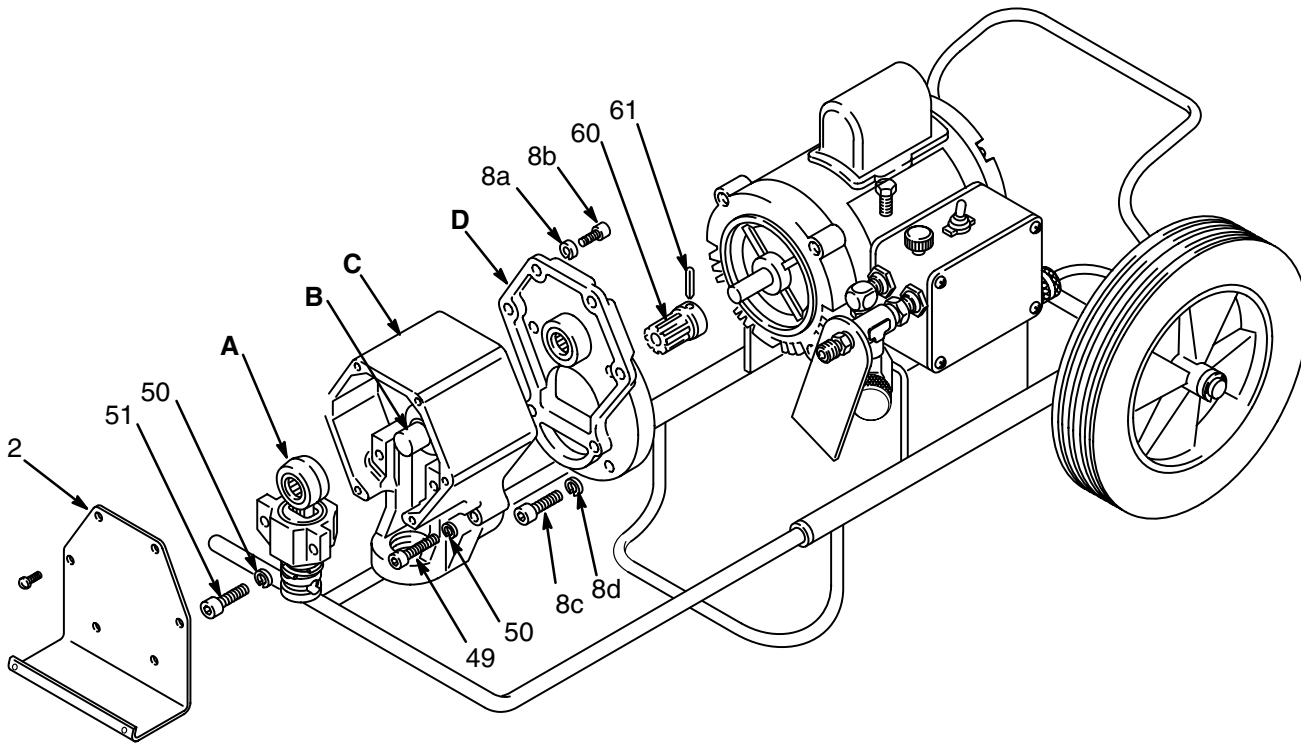


Fig 20

0883

WARNING

To reduce the risk of serious bodily injury, always follow the **Pressure Relief Procedure Warning** on page 14 before checking or repairing any part of the spray system.

NOTE: Refer to Fig 22 except where noted.

NOTE: In Fig 22, the pressure control is shown pulled away from the cart for visual purposes only. You do not have to remove the pressure control to replace the motor.

1. Remove the sprayer's shroud and the lift handle (2). Remove the drive assembly (8). See page 22. The pump, connecting rod and bearing can stay assembled to the drive assembly.
2. Drive out the pin (61). Remove the gear (60). See Fig 21.
3. Remove the pressure control cover (7). Disconnect the motor leads. See Fig 22.
4. Unscrew the connector nuts (13c & 305) on both ends of the conduit (13f). See Fig 22.

CAUTION

Always pull the motor leads one at a time to avoid loosening the terminals.

5. Remove the motor mounting screws (38). See Fig 20. Lift the motor off the frame and carefully guide the wires through the pressure control connector (305). Remove the conduit (13f) from the wires. See Fig 22.
6. Unscrew the connector (13c) from the motor. Do not twist the wires. See Fig 22.
7. Install the new motor in the reverse order.

NOTE: A circuit board (13b) is included with a new motor. See page 18 for installation.

8. Clean the gear (60) and inspect it for wear or damage. Replace if necessary. Secure the gear with the pin (61). See Fig 21. Apply molybdenum disulfide spray lubricant to the gear, allow to dry, and then apply industrial grade, heavy duty, extreme pressure, lithium soap grease.

Capacitor

1. Remove the cover of the capacitor (13a). See Fig 22. Remove the flag connectors from the old capacitor. Connect the flag connectors to the new capacitor and replace the cover.

NOTE: The replacement capacitor includes a new resistor, installed.

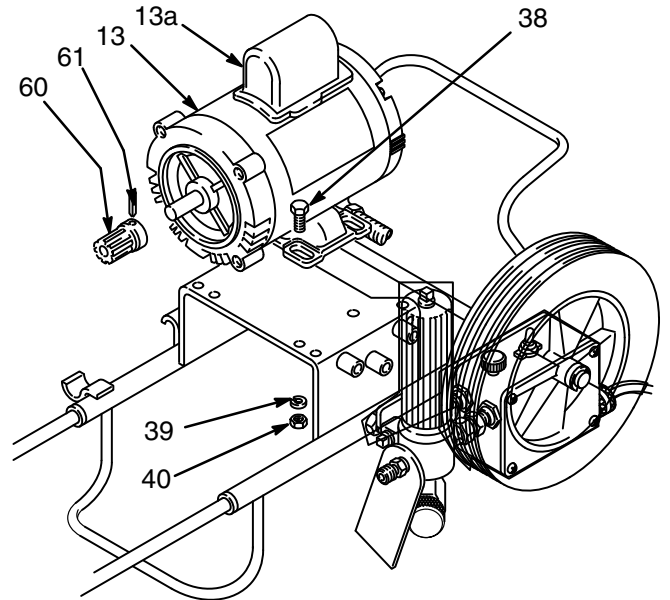


Fig 21

0882

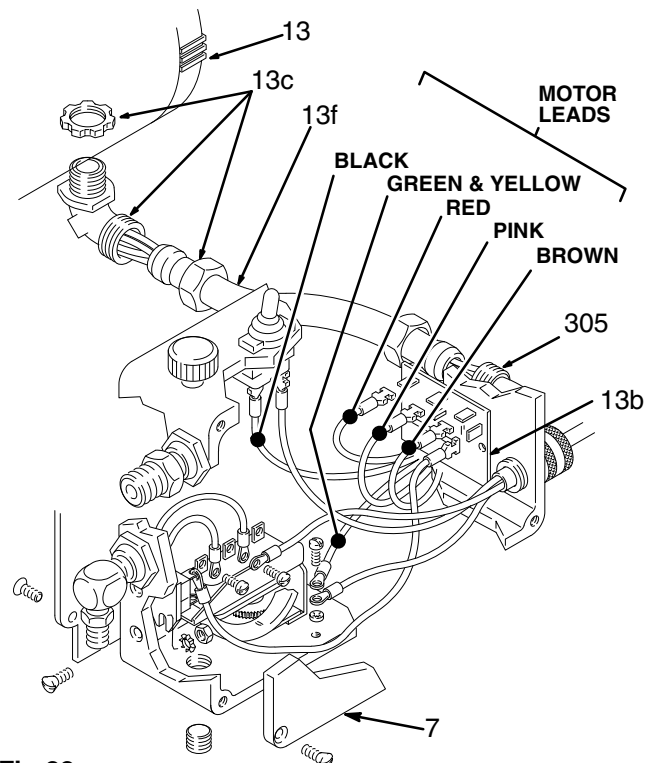


Fig 22

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PARTS LIST

PRO 301 Sprayer Model 224-604, Series B *Includes items listed below*

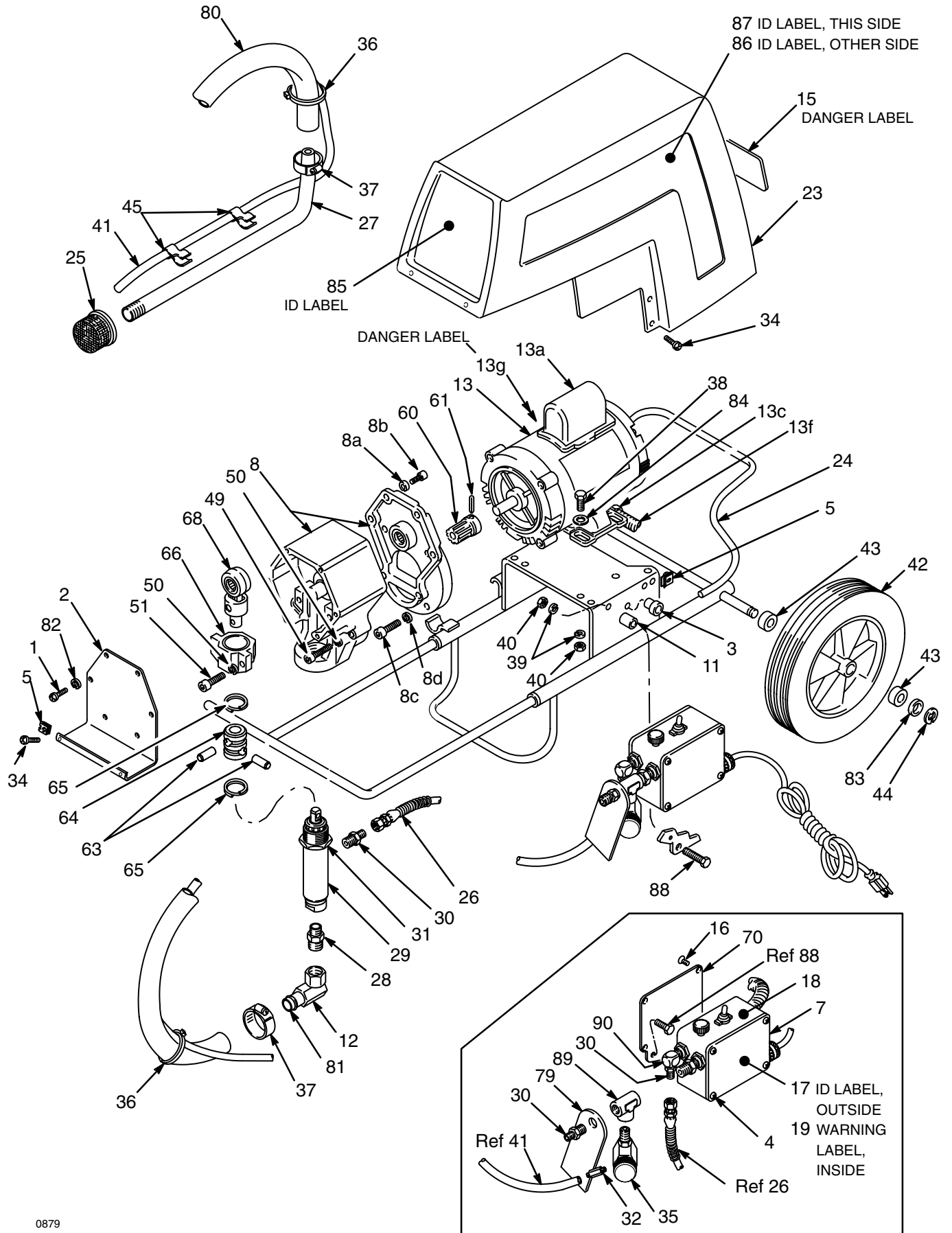
REF NO.	PART NO.	DESCRIPTION	QTY	REF NO.	PART NO.	DESCRIPTION	QTY
1	110-886	SCREW, pnh, 6-32 x 3/8"	6	30	162-453	NIPPLE, 1/4-18 npsm (m) x 1/4-18 npt(m)	3
2	186-258	LIFT HANDLE	1	31	176-762	NUT, hex, 1-1/2-18	1
3	110-847	BUSHING, snap	1	32	108-982	CONNECTOR, tube	1
4	110-885	SCREW, pnh, 10-24 x 3/8"	4	34	110-884	SCREW, pnh, 10-24 x 1/2"	4
5	110-846	NUT, retaining, self	4	35	221-077	PRESSURE DRAIN VALVE	1
7	185-001	COVER, pressure control	1	36	103-473	STRAP, wire, tie	2
8	223-726	DRIVE ASSEMBLY	1	37	103-927	CLAMP, hose, 1-1/4" ID	2
		<i>includes replaceable items 8a - 8g</i>	1	38	100-057	CAPSCREW, hex hd, 5/16-18 x 3/4"	4
8a	105-510	.LOCKWASHER, spring, 1/4"	4	39	100-214	LOCKWASHER, spring, 5/16"	7
8b	100-644	.CAPSCREW, soc hd, 1/4-20 x 3/4"	4	40	100-188	NUT, hex, 5/16-18	7
8c	100-659	.CAPSCREW, soc hd, 3/8-18 x 1"	4	41	183-281	HOSE, drain	1
8d	106-115	.LOCKWASHER, spring, 3/8"	4	42	108-179	WHEEL	2
8e	176-998	.BEARING, thrust	1	43	176-884	WASHER, backup	4
8f	110-293	.GREASE, 8 oz., <i>not shown</i>	1	44	101-242	RING, retaining	2
11	186-352	SPACER, pressure control	3	45	178-342	CLIP, spring	2
12	157-416	UNION, 90°, 1/2 npsm swivel x 1/2 npt(f)	1	49	100-657	CAPSCREW, soc hd, 5/16-18 x 2"	2
13	224-783	MOTOR	1	50	104-008	LOCKWASHER, spring, 5/16"	4
		<i>includes replaceable items 13a - 13f and one of 15</i>	1	51	105-509	CAPSCREW, soc hd, 5/16-18 x 7/8"	2
13a	106-077*	.CAPACITOR, motor, includes resistor	1	60	176-825	GEAR, pinion	1
13b	223-597	.CIRCUIT BOARD, <i>see page 26 for application information</i>	1	61	105-680	PIN, spring, straight, 3/16" x 5/16"	1
13c	110-309	.CONNECTOR, cord	1	63	176-818	PIN, str, hdls, 5/16" x 1"	2
13d	102-799	.TERMINAL, wire, ring, <i>see page 26</i>	3	64	176-824	COUPLING, pump	1
13e	596-421	.TERMINAL, wire, female, snap on, <i>see page 26</i>	4	65	176-817	SPRING, retaining	2
13f	070-487	.CONDUIT, electrical	9 in.	66	215-903	BEARING ASSEMBLY	1
15	185-954†	LABEL, DANGER	2	68	215-904	CONNECTING ROD ASSEMBLY	1
16	106-078	SCREW, flat hd, 10-24 x 3/8"	4	70	185-524	BRACKET, mounting	1
17	186-448	LABEL	1	71	206-994	THROAT SEAL LIQUID, 8 oz., <i>not shown</i>	1
18	215-860	PRESSURE CONTROL ASSEMBLY <i>see parts on page 26</i>	1	79	178-034†	TAG, WARNING	1
19	177-762†	LABEL, Warning	1	80	176-920	HOSE, suction, 36" (914 mm)	1
20	183-275	SPACER	2	81	183-291	COUPLING, 1/2-14 npt	1
23	186-314	SHROUD	1	82	103-181	LOCKWASHER, external	6
24	223-801	CART ASSEMBLY	1	83	154-636	WASHER	2
25	181-073	STRAINER	1	84	107-194	WASHER, 5/8"	4
26	223-748	HOSE, nylon, 1/4" ID, cpld 1/4 npsm(fbe), 21-3/4" (552 mm), spring guards full length	1	85	186-400	LABEL, identification	1
27	170-113	TUBE, suction	1	86	186-401	LABEL, identification	1
28	183-285	ADAPTER, 3/8 npt(m) x 1/2 npsm (m)	1	87	186-402	LABEL, identification	1
29	218-215	PUMP, displacement <i>see parts on page 27</i>	1	88	102-866	SCREW, hex hd, 5/16-18 x 1-3/4"	3
				89	106-228	TEE, 1/4 npt(f) x 1/4 npt(f) x 1/4 npt(m)	1
				90	100-840	ELBOW, street, 1/4 npt(m x f)	1

**Recommended spare parts. Keep on hand to reduce down time.*

† Extra Danger and Warning labels and tags available at no charge.

PARTS DRAWING

PRO 301 Sprayer MODEL 224-604, Series B

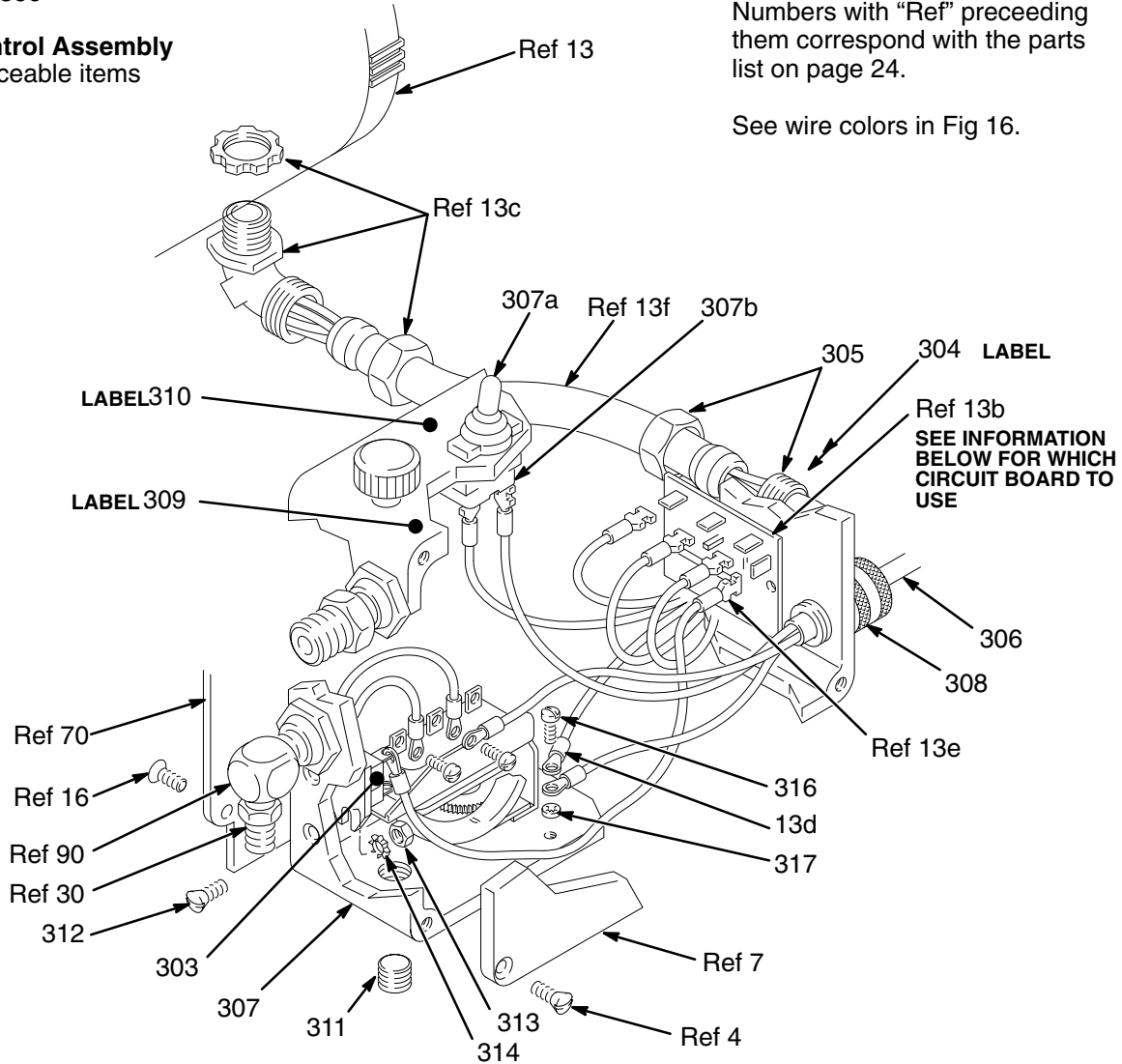


PARTS DRAWING – PRESSURE CONTROL

Part No. 215-860
Ref No. 18
Pressure Control Assembly
 Includes replaceable items listed below

NOTES:
 Numbers with "Ref" preceding them correspond with the parts list on page 24.

See wire colors in Fig 16.



REF NO.	PART NO.	DESCRIPTION	QTY
303	218-916	TRIAC	1
304	180-962‡	LABEL	1
305	102-932	CONNECTOR, conduit, 90°	1
306	217-492	CORD, power supply	1
307	217-012	BARE PRESSURE CONTROL <i>Includes items 307a and 307b</i>	1
307a	105-659	.BOOT, switch	1
307b	105-679	.TOGGLE, switch	1
308	108-295	RELIEF, strain	1
309	108-962‡	LABEL, caution	1
310	178-797‡	LABEL, warning	1
311	101-754	PLUG, pipe, 1/4"	1
312	107-070	SCREW, flat hd, No. 6-32 x 5/8"	2
313	100-072	NUT, hex, No. 6-32	2
314	103-181	LOCKWASHER, No. 6	2
316	100-035	SCREW, pan hd, No. 8-32 x 5/16"	1
317	157-021	LOCKWASHER, No. 8	1
26	308-030		

‡ Replacement Danger, Warning and Caution labels and tags available at no charge

CIRCUIT BOARD APPLICATIONS

Identify the correct circuit board for your sprayer by matching the information below. The circuit boards may be purchased separately, but all replacement motors for this sprayer include a new circuit board.

105-683 used in	Circuit Board P/N and style	223-597 used in
224-604,A	Sprayer, Series	224-604,B
223-704	Graco Motor P/N	224-783
Yes	External Motor Fan?	No
1111006402	Franklin Motor P/N	1101007415

DISPLACEMENT PUMP PARTS DRAWING and LIST

Model 218-215, Series C
Carbon Steel Displacement Pump
 Includes items 201 to 224

REF NO.	PART NO.	DESCRIPTION	QTY
201	180-656	PLUG	1
203	105-444*	BALL, sst, 0.3125" dia.	1
204	105-445*	BALL, sst, 0.5" dia.	1
205	105-522*	SEAL, u-cup, polyurethane	1
206	176-761*	GASKET, brass	1
207	176-759*	PIN, ball stop	1
208	176-749*	V-PACKING, leather	2
209	176-755*	V-PACKING, leather	2
211	176-754*	GLAND, male, Delrin®	1
212	176-757*	GLAND, female, Delrin®	1
213	176-750*	GLAND, male, Delrin®	1
214	176-751	NUT, hex, 1/2-20, sst	1
215	176-760	GUIDE, ball, sst	1
216	177-929	CYLINDER, alloy steel	1
217	176-882*	V-PACKING, polyethylene	3
218	176-997*	V-PACKING, polyethylene	3
219	186-652*	WASHER, backup, aluminum	1
220	180-073*	GLAND, female, plated steel	1
221	176-758	NUT, packing/wet-cup	1
222	215-455	VALVE, intake	1
223	181-879	ROD, piston, alloy steel	1
224	218-197	VALVE, piston	1

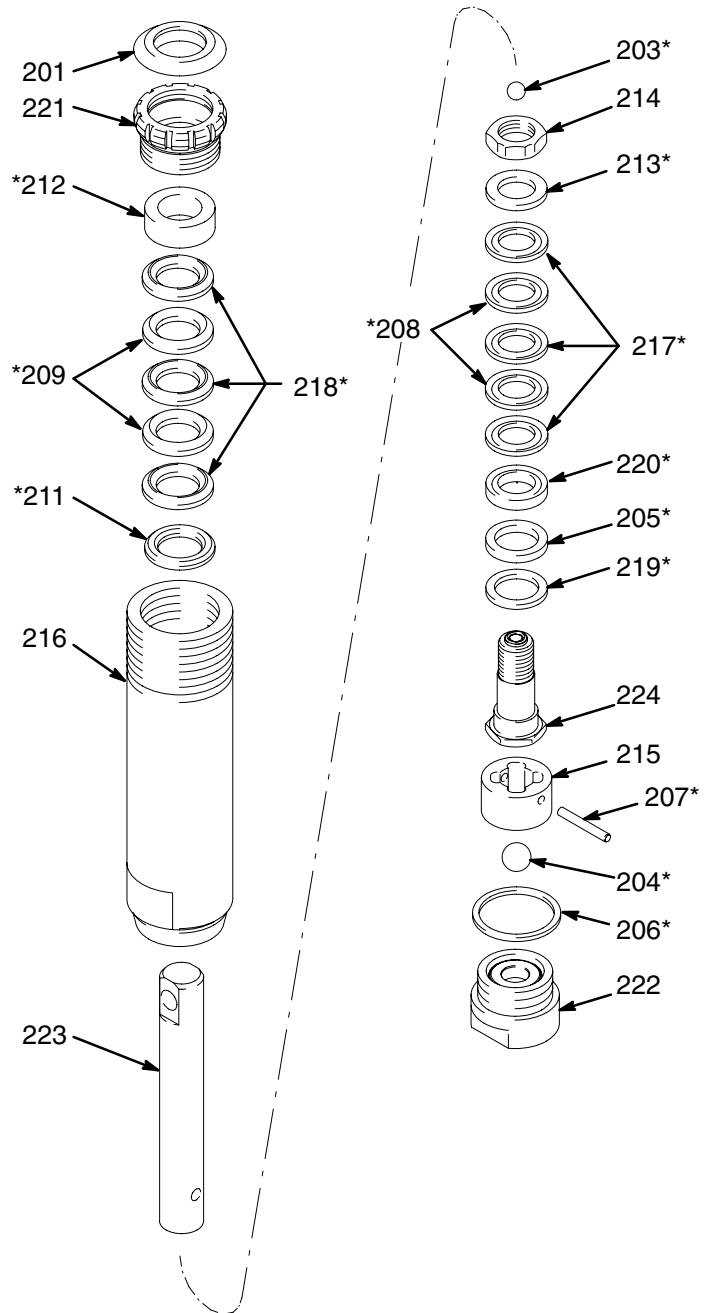
NOTE: See the repair instructions for important torque values and procedures

**Included in Repair Kit 222-587, sold separately. Keep one on hand to reduce down time.*

MANUAL CHANGE SUMMARY

This manual has been updated to improve the text on pages 16-20.

Part Status	Ref No.	Part No.	Name
Old	25	181-073	Strainer
New	25	187-146	Strainer



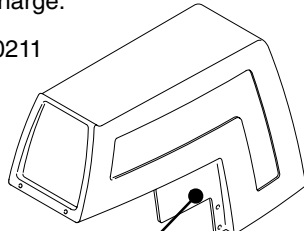
MUST BE PURCHASED SEPARATELY

DANGER LABELS

The English language DANGER label shown on page 1 is also on your sprayer. If you have painters who do not read English, order one of the following labels to apply to your sprayer. The drawing below shows the best placement of these labels for good visibility. Order the labels directly from Graco, free of charge.

Toll Free: 1-800-328-0211

French	185-955
Spanish	185-962
German	186-042
Greek	186-046
Korean	186-050
English	185-954



Apply other language in this area on other side of shroud

DISPLACEMENT PUMP REPAIR KIT 222-587

See contents on page 26. Instructions included.

THROAT SEAL LIQUID

Non-evaporating liquid for the wet-cup. Helps prevent buildup of paint on the rod and throat packings, to reduce premature wear.

206-994	8 oz.
206-995	1 quart
206-996	1 gallon

SPRAY HOSES

3300 psi (231 bar) Max. Working Pressure
coupled 1/4 npsm (f); spring guards on both ends

223-541	1/4" ID; 50 ft. (15 m)
214-701	3/16" ID; 3 ft. (0.9 m)

FLUID FILTER KIT

223-857

Includes filter and necessary mounting hardware.

REVERSE-A-CLEAN™ IV

Dripless™ TIP GUARD 220-422

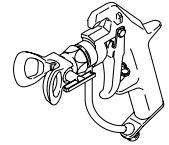
Uses fluid pressure from the gun to remove clogs without removing the tip guard to spray tip. (As shown on guns, below.) Requires SwitchTip™, purchased separately.

"SILVER" GUN

220-954

5000 psi (350 bar) MAXIMUM
WORKING PRESSURE

Includes Reverse-A-Clean IV DripLess™
Tip Guard and 517 size SwitchTip™

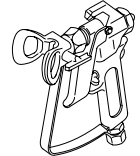


"CONTRACTOR" GUN

220-955

3600 psi (252 bar) MAXIMUM
WORKING PRESSURE

Includes Reverse-A-Clean IV DripLess™
Tip Guard and 517 size SwitchTip™



"BLACK MAX" GUN

220-730

3600 psi (252 bar) MAXIMUM
WORKING PRESSURE

Includes Reverse-A-Clean IV DripLess™
Tip Guard and 513 size SwitchTip™



NOTES

MANUAL CHANGE SUMMARY

Model 223-636 Sprayer has been replaced by Model 224-604 sprayer. The primary changes are a new motor and a new cart with wheels. The following chart shows the changes between the old and new models.

Part Status	Ref No.	Part No.	Name
Old	2	223-802	Lift Handle
New	2	186-258	Lift Handle
Delete	13	223-704	Motor
Add	13	224-783	Motor
Delete	13b	106-076	Circuit Board
Add	13b	223-597	Circuit Board
Delete	24	223-652	Cart
Add	24	223-801	Cart
Add	20	183-275	Spacer
Add	42	108-179	Wheel
Delete	43	105-521	Cap
Add	43	176-884	Washer
Add	44	101-242	Ring
Add	83	154-636	Washer
Delete	32	108-892	Connector
Delete	63	176-816	Pin
Add	63	176-818	Pin
Delete	79	178-034	Tag
Delete	91	110-843	Elbow

The displacement pump was also changed as follows:

Assembly Changed	Part Status	Ref No.	Part No.	Name
218-215 Displacement Pump	Old	219	180-16	Washer
	New	219	1	Washer
			186-65 2	

TECHNICAL DATA

Electric Motor	0.5 HP, 1725 rpm, 115V, 60HzAC, single phase with automatic thermal overload switch
Electric Cord	No. 14 gauge, 3 wire
Maximum Working Pressure	2500 psi (172 bar)
Maximum Delivery	0.33 GPM (1.25 liter/min)
Cycles/Gallon (liter)	750 (197)
Tip Size	one gun to 0.017 tip <i>with latex at 2000 psi (138 bar)</i>
Wetted Parts	
<i>Displacement Pump</i>	Carbon Steel, Polyurethane, Polyethylene, Alloy steel, Zinc-plated steel, Delrin®, Leather
<i>Filter</i>	Aluminum, Carbon Steel, Stainless Steel
Fluid Inlet	3/4 npt(m) with 30° ID chamfer
Fluid Outlet Size	1/4 npsm(m)
Dimensions	
<i>Weight</i>	80 lb (36 Kg)
<i>Height</i>	20 in. (508 mm)
<i>Length</i>	27 in. (686 mm)
<i>Width</i>	18 in. (457 mm)

NOTE: Delrin®

IMPORTANT PHONE NUMBERS

TO PLACE AN ORDER, contact your Fuller O'Brien distributor, or call this number to identify the distributor closest to you: **1-800-328-0211 Toll Free**

FOR TECHNICAL ASSISTANCE, service repair information or assistance regarding the application of Fuller O'Brien equipment: **1-800-543-0339 Toll Free**

THE GRACO WARRANTY AND DISCLAIMERS

WARRANTY

Graco warrants all equipment manufactured by it and bearing its name to be free from defects in material and workmanship on the date of sale by an authorized Graco distributor to the original purchaser for use. As purchaser's sole remedy for breach of this warranty, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment proven defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for, any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility with Graco equipment of structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claim. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor and transportation.

DISCLAIMERS AND LIMITATIONS

THE TERMS OF THIS WARRANTY CONSTITUTE PURCHASER'S SOLE AND EXCLUSIVE REMEDY AND ARE IN LIEU OF ANY OTHER WARRANTIES (EXPRESS OR IMPLIED), INCLUDING WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND OF ANY NON-CONTRACTUAL LIABILITIES, INCLUDING PRODUCT LIABILITIES, BASED ON NEGLIGENCE OR STRICT LIABILITY. EVERY FORM OF LIABILITY FOR DIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES OR LOSS IS EXPRESSLY EXCLUDED AND DENIED. IN NO CASE SHALL GRACO'S LIABILITY EXCEED THE AMOUNT OF THE PURCHASE PRICE. ANY ACTION FOR BREACH OF WARRANTY MUST BE BROUGHT WITHIN TWO (2) YEARS OF THE DATE OF SALE.

EQUIPMENT NOT COVERED BY GRACO WARRANTY

GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO ACCESSORIES, EQUIPMENT, MATERIALS, OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO. These items sold, but not manufactured by Graco (such as electric motor, switches, hose, etc.) are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

Factory Branches: Atlanta, Dallas, Detroit, Los Angeles, Mt. Arlington(N.J.)

Subsidiary and Affiliate Companies: Canada; England; Switzerland; France; Germany; Hong Kong; Japan; Korea

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