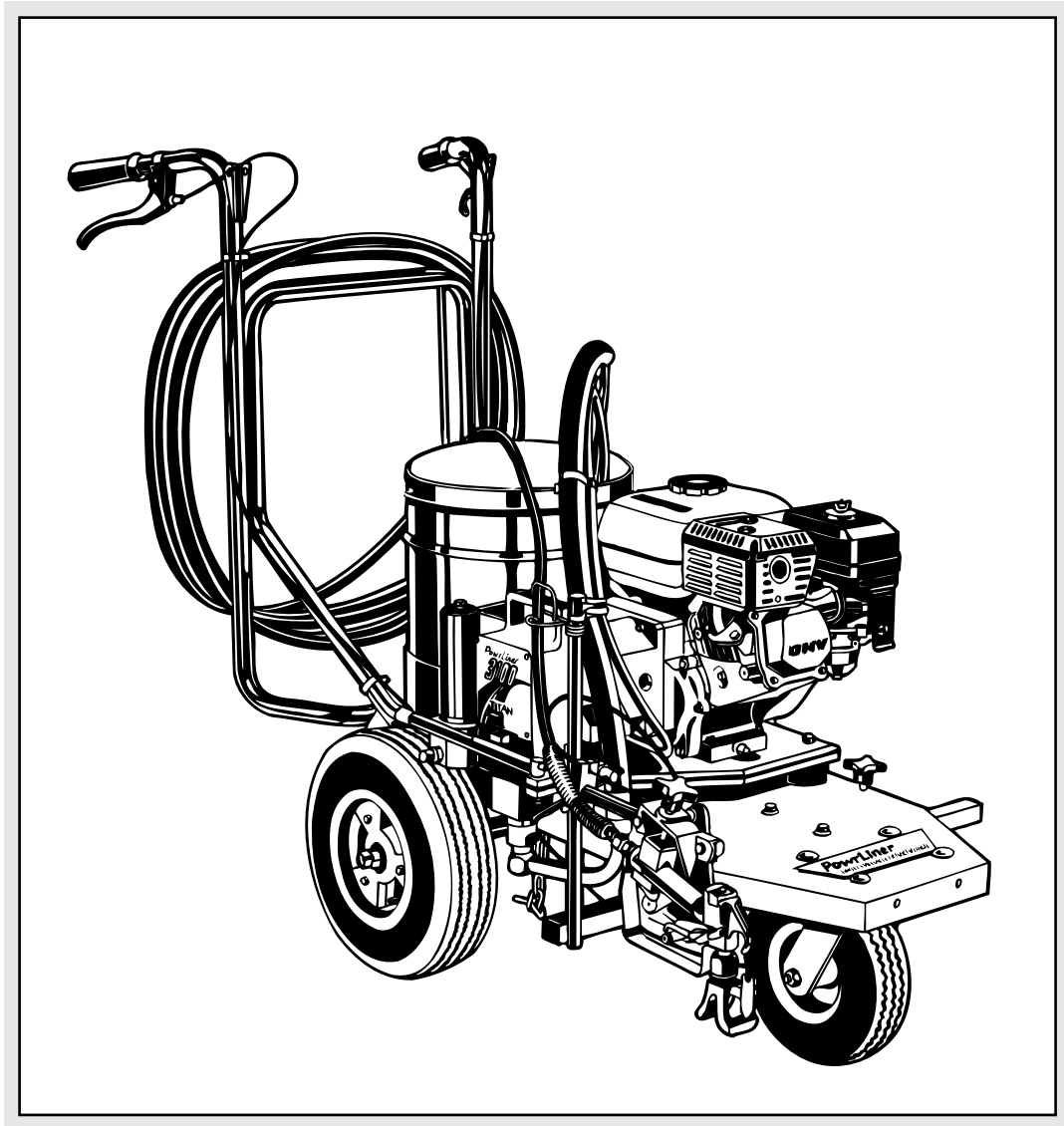


TITAN[®]

Owner's Manual
For professional use only

Do not use this equipment before reading this manual!

PowerLiner 3100




**Model Number:
Pump Complete 759-300**

NOTE: This manual contains important warnings and instructions. Please read and retain for reference.

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WARNING: The Engine Exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

U.S. Patents: 3,936,002; 4,220,286; 4,457,472; 4,508,268; 4,494,697; 4,500,119; 4,626,004; 4,611,758; 4,744,571; 4,728,213; 4,768,932; 4,755,638; 4,768,929; 4,840,543; 4,908,538; 5,074,467; 5,425,506

Accessories

LIQUID SHIELD

Cleans and protects spray systems against rust, corrosion and premature wear.

Case of 12 (1 quart bottles) ...700-888
 1 quart700-889



AIRLESS HOSE

I.D.x Length	Part #
1/4" x 50'	316-505
3/8" x 50'	690-375-50
3/16" x 3'	550-220
3/16" x 9'	550-222
3/16" x 15'	550-221

HIGH PRESSURE SWIVELS

Pressure Rated at 5000 psi

Gun-to-Hose

1/4" NPS (F) x 1/4" NPS (M).....500-428

Hose-to-Hose

1/4" NPS (M) x 1/4" NPS(M)500-424

PISTON SEAL LUBRICANT

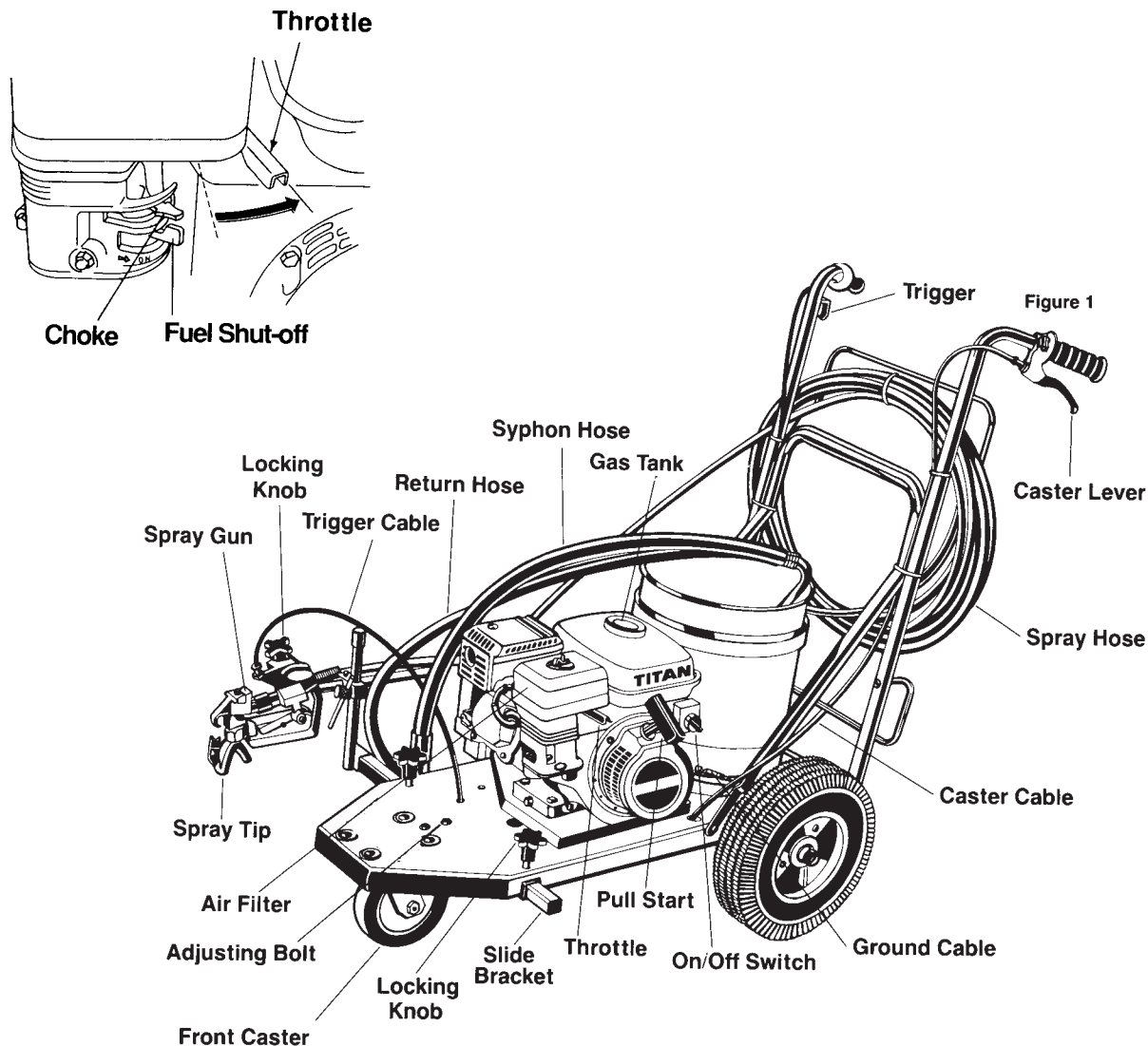
Specially formulated to prevent materials from adhering to the piston rod, which becomes abrasive to the upper seals. Piston Lube will break down any material that may accumulate in the wet cup and keep it from drying.

8 oz individual.....700-925
 1 qt individual.....700-926
 8 oz, case of 12700-911
 1 qt, case of 12.....700-912



FITTINGS

Description	Part #
1/4" x 1/4" Hose Coupling.....	490-012
1/4" x 3/8" Hose Coupling.....	490-016
3/8" x 3/8" Hose Coupling.....	490-014
T-Fittings 1/4" x 1/4".....	490-036
Gun Manifold.....	500-056
Tip Filter Retainer.....	520-046
1/4" Mx1/4"F Swivel Union.....	490-005
1/4" Mx3/8"F Swivel Union.....	490-032
Retaining Nut Adapter.....	490-007
High Pressure Fl. Gauge.....	730-394



PowrLiner Maintenance

When transporting a unit with a gas engine, make sure to shut the fuel off.

WARNING: Before proceeding, follow the **Pressure Relief Procedure** outlined in the “Warning” section of this manual. Additionally, follow all other warnings to reduce the risk of an injection injury, injury from moving parts or electric shock. Always unplug the sprayer before servicing!

CAUTION: For detailed engine maintenance and specifications, refer to the separate engine manual supplied.

Routine Maintenance:

Daily: Check and fill the gas tank. After the first 20 hours of operation: Drain the oil and refill with clean oil.

Daily: Check the engine oil level and fill as necessary.

Weekly: Remove the cover of the air filter and clean the element. Replace the element if necessary. If operating in an unusually dusty environment, check the filter daily and replace if necessary.

Replacement elements can be purchased from your local **TITAN** Dealer.

Weekly: Check the level of the Piston Seal Lubricant (PSL) in the displacement pump packing cup. Fill it if necessary. Keeping PSL in the cup helps lubricate the packings and piston.

After each 50 hours of operation: Change the engine oil.

Spark Plug: use only a (NKG) BP6ES plug. Gap the plug to 0.025 - 0.30 in. (0.7 -0.8 mm). Be sure to use a spark plug wrench when installing and removing the plug.

If you have any further questions concerning your sprayer, call **TITAN:**

Customer Service Department **1-800-526-5362**

Fax **1-800-528-4826**

Outside the U.S. Call **1-201-405-7520**

Outside the U.S. Fax **1-201-405-7449**

Canada **1-800-565-8665**

Fax **1-905-856-8496**

MODEL #	SERIAL #	DATE PURCHASED	COMPANY NAME
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Titan Tool is in the business of designing and manufacturing spray systems and accessories that make today's Painting Professional become more efficient and profitable. We feel that if you accurately track the maintenance of your equipment on this chart it will improve the performance of this valuable tool to help you get the most out of your investment.

The chart is easy to follow and to use. The Maintenance Schedule allows for the recording of all your service work and will help you make sure your unit is always running at peak performance.

Make sure to fill in the boxes at the top of this record with the model number, serial number, date purchased and your company name. This information will be needed to validate your warranty.

Maintenance Schedule

Check Piston Seal Lubricant Level WEEKLY.

PowrLiner 3100

Change Engine Oil Every 50 Hours	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date
---	------	------	------	------	------	------	------	------	------	------

Clean Air Filter Daily

It is extremely important to clean the air filter daily. Consult the Honda Engine Manual supplied with your unit for proper cleaning instructions.

Air Filter Replaced	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date
----------------------------	------	------	------	------	------	------	------	------	------	------

Service Record

Date	Service Center	Service Performed	Warranty Repair <input type="checkbox"/> Yes <input type="checkbox"/> No
Months in Service	Cost of Repair		
Date	Service Center	Service Performed	Warranty Repair <input type="checkbox"/> Yes <input type="checkbox"/> No
Months in Service	Cost of Repair		
Date	Service Center	Service Performed	Warranty Repair <input type="checkbox"/> Yes <input type="checkbox"/> No
Months in Service	Cost of Repair		
Date	Service Center	Service Performed	Warranty Repair <input type="checkbox"/> Yes <input type="checkbox"/> No
Months in Service	Cost of Repair		
Date	Service Center	Service Performed	Warranty Repair <input type="checkbox"/> Yes <input type="checkbox"/> No
Months in Service	Cost of Repair		

May Be Copied For Field Use

DO NOT USE EQUIPMENT BEFORE READING THIS SECTION

WARNING
HIGH PRESSURE SPRAY
CAN CAUSE SERIOUS INJURY
Maximum Working Pressure 3200 psi, 221 bar

An airless spray gun requires that fluid be introduced to it at very high pressure. Fluids under high pressure, from spray or leaks, can penetrate the skin and inject substantial quantities of toxic fluid into the body. If not promptly and properly treated, the injury can cause tissue death or gangrene and may result in serious, permanent disability or amputation of the wounded part. Therefore, extreme caution must be exercised when using any airless spray equipment. **IF YOU ARE INJECTED, SEE A PHYSICIAN IMMEDIATELY. DO NOT TREAT AS A SIMPLE CUT!**

NOTE TO PHYSICIAN: Injection into the skin is a serious, 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 bloodstream. Consultation with a plastic surgeon or a reconstructive hand surgeon may be advised.

- 1) Handle the spray gun carefully. Keep clear of the nozzle. **NEVER** point the gun at yourself or anyone else. **NEVER** permit any part of your body to come in contact with the fluid stream of either the gun or any hose leak. **ALWAYS** keep the gun trigger safety lever in a locked position when not spraying. **ALWAYS** use a tip safety guard.
- 2) **NEVER** attempt to force the flow of fluid backward through the gun with your finger, hand or hand-held object against the gun nozzle. **THIS IS NOT AN AIR SPRAY GUN.**

PRESSURE RELEASE PROCEDURE

- A. Set trigger safety in a locked position.
- B. Shut off pump and unplug electrical cord.
- C. Release fluid pressure from entire system and trigger gun.

- 3) **NEVER** attempt to remove tip, disassemble or repair equipment without first doing the following:
- 4) Before flushing system, always remove spray tip and adjust fluid pressure to lowest possible setting.
- 5) Tighten all fluid connections before each use. **NEVER** exceed 3200 psi, (221 bar) with this unit. Make sure that all accessory hoses, connections, swivels and so forth can withstand the high pressures which develop. **NEVER** exceed the pressure rating of any component in the system.
- 6) **WARNING:** The paint hose can develop leaks from wear, kinking, abuse, etc. A leak is capable of injecting fluid into the skin, therefore the paint hose should be inspected before each use. **NEVER** attempt to plug a hose with any part of your body, adhesive tape or any other makeshift device. Do not attempt to repair a spray hose. Instead, replace it with a new grounded hose. Use only with hoses that have spring guards. **NEVER** use less than 50' (7,5m) of hose with this unit.
- 7) Be sure that the airless equipment being used and the object being sprayed are properly grounded to prevent static discharge or sparks which could cause fire or explosion. **WARNING: ALWAYS** hold the gun against metal container when flushing system with tip removed, to prevent static discharge. **CAUTION:** To reduce the risk of electrical shock, do not expose to rain. Store indoors.
- 8) **ALWAYS** keep the working area around the pump well ventilated. Additionally, the pump itself should be a minimum of 25' (7,5m) from the spray area. If these instructions are not followed, there is the possibility of fire or explosion with certain materials. **ALWAYS** follow the coating or solvent manufacturer's safety precautions and warnings. Never spray flammable material near open flames, pilot lights or any source of ignition.
- 9) **ALWAYS** wear spray masks and protective eyewear while spraying. Additional personal protective equipment may be required depending on the type of material being sprayed and conditions of ventilation. Always contact supplier of material being sprayed for recommendation.
- 10) Keep all extension poles clear of electrical wires.
- 11) **NEVER** alter or modify any part of this equipment; doing so could cause it to malfunction.
- 12) **NEVER** leave equipment unattended. Keep away from children or anyone not familiar with the operation of airless equipment.

NO USE EL EQUIPO ANTES DE LEER ESTA SECCION

ADVERTENCIA

LA ROCIADURA A PRESION ALTA PUEDE CAUSAR LESION GRAVE.

Presión de Trabajo Máxima 3200 libras por pulgada cuadrada (psi), 221 bar

Una pistola rociadora sin aire requiere que se le introduzca líquido a presión muy alta. Los líquidos bajo presión alta, de la rociadura o de las fugas, pueden penetrar en la piel e inyectar en el cuerpo cantidades considerables de líquido tóxico. Si no se atiende rápida y apropiadamente, la lesión puede causar muerte del tejido o gangrena, y puede resultar en incapacidad seria y permanente o en la amputación de la parte lesionada. Por lo tanto, hay que emplear precauciones estrictas al usar cualquier equipo de rociadura sin aire. **SI USTED HA ESTADO EXPUESTO A LA PENETRACION DE TOXICOS POR INYECCION, CONSULTE INMEDIATAMENTE AL MEDICO. ¡NO TRATE LA HERIDA COMO SI FUERA UNA MERA CORTADURA!**

NOTA PARA EL MEDICO: La penetración de tóxicos en la piel es una herida seria y traumática. Es importante tratar la herida quirúrgicamente lo más pronto posible. No demore el tratamiento para investigar la toxicidad. La toxicidad es asunto serio cuando se trata de la penetración de ciertos revestimientos tóxicos en la corriente sanguínea. Puede que sea necesaria la consulta con un cirujano plástico o un cirujano especialista en la reconstrucción de la mano.

- 1) Maneje la pistola de rociadura con cuidado. Manténgase alejado de la boquilla. **JAMAS** apunte la pistola hacia usted u otra persona. **NUNCA** permita que parte alguna de su cuerpo se ponga en contacto con el chorro de líquido de la pistola o de alguna fuga de la manguera. **SIEMPRE** mantenga trabado el seguro de la pistola mientras no esté rociando. **SIEMPRE** utilice el protector de seguridad de la boquilla.
- 2) **JAMAS** intente forzar el flujo del líquido por la pistola hacia atrás con el dedo, la mano o un objeto sostenido con la mano contra la boquilla de la pistola, ya que **NO SE TRATA DE UNA PISTOLA DE ROCIADURA DE AIRE.**
- 3) **JAMAS** intente quitar la boquilla ni desarmar o reparar el equipo sin haber cumplido antes con los pasos siguientes:

PROCEDIMIENTO DE DESCOMPRESION

- A. Coloque el seguro de la pistola en posición trabada.
- B. Apague la bomba y desconecte también el cable de electricidad.
- C. Descargue la presión del líquido de todo el sistema y de la pistola.
- D. Vuelva a trabar el seguro.

- 4) Antes de lavar el sistema, siempre quite la boquilla de rociadura y ajuste la presión del líquido al valor más bajo posible.
- 5) Ajuste todas las conexiones antes de cada uso. **JAMAS** supere 3200 (221 bar) libras por pulgada cuadrada con esta unidad. Asegúrese de que todas las mangueras, conexiones, articulaciones giratorias y demás elementos accesorios estén en condiciones de tolerar las altas presiones que se presentan. **JAMAS** exceda la clasificación de presión de cualquier componente del sistema.
- 6) **ADVERTENCIA:** La manguera de pintura puede presentar fugas como resultado del desgaste, retorcimiento, abuso, etc. Las fugas pueden inyectar líquido a través de la piel, por lo que la manguera de pintura debe ser inspeccionada antes de cada uso. **JAMAS** intente obturar la manguera con una parte de su cuerpo o con tela adhesiva o cualquier otro elemento improvisado. No intente reparar una manguera de rociadura; en cambio reemplácela con una manguera nueva conectada a tierra. Utilice solamente mangueras con protector de resorte. **JAMAS** use una manguera de menos de 15,2 m con esta unidad. Almacenar bajo techo.
- 7) Asegúrese de que el equipo sin aire que esté empleando y el objeto que se intenta rociar estén correctamente conectados a tierra para evitar descargas estáticas o chispas que podrían ocasionar incendio o explosión. **ADVERTENCIA:** Sostenga **SIEMPRE** la pistola contra el receptáculo de metal al limpiar el sistema con la boquilla desprendida, para evitar la descarga estática. **ADVERTENCIA:** Para reducir riesgo de descarga eléctrica, no exponer a la lluvia.
- 8) **SIEMPRE** mantenga el lugar de trabajo alrededor de la bomba bien ventilado. Además, la bomba en sí debe estar ubicada a no menos de 7,5 m de la operación de rociadura. Si no se observan estas instrucciones, existe el riesgo de incendio o explosión con ciertos materiales. **SIEMPRE** observe las precauciones y advertencias de los fabricantes sobre revestimientos y solventes. Nunca rocíe material inflamable cerca de llamas expuestas, llamas piloto o cualquier fuente de ignición.
- 9) **SIEMPRE** use máscaras apropiadas y anteojos de protección durante la operación de rociadura. Según el tipo de material que se está rociando y las condiciones de ventilación puede ser necesario usar equipo personal protector adicional. Siempre comuníquese con el proveedor del material para conseguir recomendaciones.
- 10) Mantenga todas las varas de extensión fuera del alcance de cables eléctricos.
- 11) **JAMAS** altere o modifique parte alguna de este equipo, ya que ello puede causar deficiencias de funcionamiento.
- 12) **JAMAS** deje al equipo solo. Manténgalo fuera del alcance de los niños o de cualquier persona no familiarizada con la operación de equipo sin aire.

NE PAS UTILISER LE MATERIEL AVANT D'AVOIR LU CETTE SECTION

ATTENTION!

LES PULVERISATEURS A HAUTE PRESSION PEUVENT PROVOQUER DE SERIEUSES LESIONS

Pression de travail maximale: 3200 psi — 221 bar

Le liquide introduit dans un pistolet pulvérisateur sans air doit être à pression extrêmement élevée. Les liquides à haute pression, en provenance du pulvérisateur ou d'une fuite quelconque, sont capables de pénétrer la peau et d'injecter d'importantes quantités de liquide toxique dans l'organisme. Si elle n'est pas traitée promptement et avec toute l'attention voulue, la lésion causée de la sorte peut provoquer la nécrose des tissus ou la gangrène et donner lieu à de sérieux handicaps permanents, voire à l'amputation du membre atteint. Une prudence extrême s'impose donc lors de l'utilisation de matériel de pulvérisation sans air. **EN CAS D'INJECTION, CONSULTEZ UN MEDECIN IMMEDIATEMENT. NE TRAITÉZ PAS LA BLESSURE COMME S'IL S'AGISSAIT D'UNE SIMPLE COUPURE!**

REMARQUE A L'INTENTION DU MEDECIN : Une injection pénétrant la peau constitue une lésion traumatique grave qu'il est important de traiter chirurgicalement aussitôt que possible. Ne perdez pas de temps à rechercher la toxicité de l'injection. Il s'agit là d'un risque à envisager en cas d'injection directe dans le circuit sanguin de certains revêtements exotiques. La consultation d'un chirurgien plasticien ou d'un spécialiste de la chirurgie reconstructive de la main peut être conseillée.

- 1) Maniez le pistolet avec soin. Maintenez-vous à l'écart de la buse. N'en dirigez **JAMAIS** la buse vers aucune partie de votre corps ou vers aucune autre personne. Ne laissez **JAMAIS** aucune partie de votre corps entrer en contact avec le flux de liquide s'échappant du pistolet ou d'une fuite quelconque au niveau du flexible. Verrouillez **TOUJOURS** le levier de sûreté de la détente lorsque vous n'êtes pas occupé à pulvériser. **Veillez à TOUJOURS utiliser un dispositif de sûreté à la buse du pistolet.**
- 2) N'essayez **JAMAIS** de refouler le flux de liquide dans le pistolet au moyen de votre doigt, de votre main ou d'un objet maintenu contre la buse du pistolet. **CET APPAREIL N'EST PAS UN PISTOLET PULVERISATEUR A AIR.** N'utilisez aucune pièce de matériel sans air avec une pompe non équipée d'une soupape de surpression.
- 3) N'essayez **JAMAIS** d'enlever la buse, de démonter ou de réparer l'appareil avant d'avoir accompli la procédure suivante :

PROCEDURE DE DELESTAGE DE PRESSION

- A. Verrouillez la sûreté de la détente.**
- B. Arrêtez la pompe et débranchez le cordon électrique.**
- C. Délestez la pression dans tout le système et appuyez sur la détente du pistolet.**
- D. Reverrouillez la sûreté de la détente.**

- 4) Avant de procéder au rinçage du système, enlevez toujours la buse de pulvérisation et réglez la pression au niveau le plus faible possible.
- 5) Serrez bien tous les raccords du système hydrodynamique avant chaque emploi. Ne dépassez **JAMAIS**, avec cet appareil, une pression de 3200 psi. Assurez-vous que tous les flexibles accessoires, raccords, articulations, etc. sont bien capables de résister aux hautes pressions prévues. Ne dépassez **JAMAIS** la capacité de pression nominale d'aucun composant du système. **DANGER :** Afin de réduire tout risque d'électrocution, n'exposez pas à la pluie.
- 6) **ATTENTION :** Des fuites risquent de se produire le long du flexible de peinture sous l'effet de l'usure, des torsions, des rudes traitements, etc. auxquels il est éventuellement soumis. Les injections de liquide dans la peau sont possibles par la voie de telles fuites. Il est donc important d'inspecter le flexible avant chaque usage. N'essayez **JAMAIS** d'obturer une fuite à l'aide de votre doigt ou de tout autre membre de votre corps, de ruban adhésif ou de tout autre moyen de fortune. N'essayez pas non plus de réparer un flexible de pulvérisation ; remplacez-le plutôt par un nouveau flexible mis à la terre. Veillez à n'utiliser que les flexibles munis de dispositifs de sécurité à ressort. N'utilisez **JAMAIS** moins de 15,2 m de flexible avec cet appareil.
- 7) Assurez-vous que le matériel sans air utilisé et que l'objet à peindre sont adéquatement mis à la terre, de façon à éviter toute décharge d'électricité statique ou toute étincelle susceptible de provoquer un incendie ou une explosion. **ATTENTION :** Tenez **TOUJOURS** le pistolet contre un récipient en métal lors du rinçage du système, après en avoir ôté la buse. Ne vaporisez **JAMAIS** de substances inflammables à proximité de flammes nues, lampes témoin ni d'aucune source d'allumage. Rangez à l'intérieur.
- 8) Le moteur électrique de cet appareil n'est pas protégé contre les explosions. Il est donc essentiel d'assurer une bonne ventilation de la zone de travail et des alentours de la pompe. Il est également important de maintenir la pompe à une distance minimale de 7,6 m de la zone de pulvérisation. Certains matériaux présentent, à défaut de suivre ces consignes, un risque d'incendie ou d'explosion. Suivez **TOUJOURS** les précautions et avertissements du fabricant de chaque solvant ou revêtement utilisé.
- 9) Portez **TOUJOURS** un masque et des lunettes de protection lors de vos travaux de pulvérisation. D'autres articles de protection personnelle peuvent être nécessaires suivant le type de produit pulvérisé et les conditions d'aération. Demandez toujours ses recommandations à votre fournisseur.
- 10) Maintenez toutes les tiges de rallonge à distance des fils électriques.
- 11) N'altérez ou ne modifiez **JAMAIS** une partie quelconque de cet appareil, ce qui pourrait causer des défaillances.
- 12) Ne laissez **JAMAIS** le matériel sans surveillance. Gardez-le hors de portée des enfants et de toute personne inexpérimentée quant à l'usage de matériel sans air.

FIRE OR EXPLOSION HAZARD

Static electricity is created by the high velocity of fluid through the pump, hose and tip. If every part of the spray element 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 starting a gas engine. Sparks can ignite fumes from solvents or the fluids being sprayed. Always plug the sprayer into an outlet at least 25' (7,5) away from the spray area.

WARNING: Always flush the unit into a separate metal container with the spray tip removed and the gun held firmly against the side of the container to assure proper grounding and prevent static discharge which could cause serious bodily injury.

If you experience any static sparking or 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 corrected.

ELECTRIC MOTOR

The electric motors used by TITAN are not explosion proof. Therefore, it is essential to keep the working area around the pump well ventilated. Additionally, the pump itself should be a minimum of 25' (7,5) from the spray area.

WARNING: Always keep pump outside of any enclosed spray area. Never clean the exterior of the pump with any flammable solvents.

GAS ENGINE (Where Applicable)

Always keep pump outside of any enclosed spray area. Keep area around pump well ventilated. Keep all solvents away from engine exhaust. (Never fill the fuel tank while the engine is running or hot. Fuel spilled on a hot surface can ignite and cause a fire.) Always attach ground wire located on rear of engine to a grounded object, i.e. water pipe. **NOTE:** Refer to engine owner's manual for additional safety and service information.

FLUID SECTION—SOLVENTS

Halogenated Hydrocarbon solvents can cause an explosion when used with aluminum or galvanized components in a closed (pressurizable) fluid system (pumps, heaters, filters, valves, spray guns, tanks, etc.). The explosion could cause serious injury, death and/or substantial property damage. Cleaning agents, coatings, paints, etc. may contain Halogenated Hydrocarbon solvents. Titan Tool Inc. spray equipment includes aluminum or galvanized components and will be affected by Halogenated Hydrocarbon solvents. **DO NOT USE HALOGENATED HYDROCARBONS IN THE PowrLiner 3100.**

EXPLANATION OF THE HAZARD

There are three key elements to the Halogenated Hydrocarbon (HHC) solvent hazard. These elements are:

1. The presence of HHC solvents.
2. Aluminum or galvanized parts.
3. Equipment capable of withstanding pressure.

When all three elements are present, the result can be an extremely violent explosion. The reaction can be sustained with very little aluminum or galvanized metal: any amount of aluminum is too much. The reaction is unpredictable. Prior use of an HHC solvent without incident (corrosion or explosion) does NOT mean that such use is safe.

PELIGRO DE INCENDIO O EXPLOSIÓN

La alta velocidad del líquido a través de la bomba, manguera y la boquilla produce electricidad estática. Si algún componente del equipo de rociadura no está conectado a tierra correctamente pueden producirse chispas y el sistema se vuelve peligroso. También pueden producirse chispas al enchufar o desenchufar cables eléctricos o al poner en funcionamiento un motor a gasolina. Las chispas pueden encender los vapores provenientes de los solventes o de los líquidos rociados. Siempre conecte el rociador a un enchufe ubicado a no menos de 7,5m de distancia de la zona de rociadura.

ADVERTENCIA: Lavar siempre la unidad en un recipiente metálico separado, habiendo quitado la boca del rociador y teniendo la pistola firmemente contra el lado del recipiente para asegurar una puesta a tierra correcta y evitar la descarga estática que podría causar lesión corporal grave.

Si ocurren chispas de electricidad estática o si sufre un shock eléctrico ligero mientras usa el equipo, deje de rociar de inmediato. Verifique que el sistema en su totalidad esté conectado a tierra correctamente. No vuelva a usar el sistema hasta que el problema haya sido resuelto.

MOTOR ELÉCTRICO:

Los motores eléctricos utilizados por TITAN no son a prueba de explosión. Por lo tanto, es esencial mantener el área de trabajo alrededor de la bomba bien ventilada. Además, la bomba misma debe estar a una distancia mínima de 7,5m del área de rociadura.

ADVERTENCIA: Mantener siempre la bomba afuera de cualquier área de rociadura cerrada. Nunca limpie el exterior de la bomba con solventes inflamables.

MOTOR A GASOLINA: (Si fuera aplicable)

Siempre mantenga la bomba afuera de cualquier zona de rociadura cerrada. Mantenga el área alrededor de la bomba bien ventilada. Mantenga todos los solventes lejos del escape del motor. (Nunca liene el tanque de combustible cuando el motor esté funcionando o caliente. El combustible derramado sobre una superficie caliente puede encenderse y producir un incendio). El cable a tierra que está ubicado en la parte de atrás del motor debe estar siempre adherido a un objeto conectado a tierra, por ejemplo, una cañería de agua. **NOTA:** Vea el manual de uso del motor para información adicional sobre seguridad y mantenimiento.

SECCION FLUIDO—SOLVENTES

Los solventes a base de hidrocarburos halogenados pueden provocar explosión cuando se usan con componentes galvanizados o de aluminio en un sistema líquido cerrado (sujeto a presión) (bombas, calefactores, filtros, válvulas, pistolas de rociadura, tanques, etc.) La explosión podría causar lesiones serias e inclusive la muerte, así como daños materiales de consideración. Los líquidos de limpieza, revestimientos, pinturas, etc. pueden contener solventes a base de hidrocarburos halogenados. El equipo de rociadura ofrecido por Titan Tool Inc. tiene componentes galvanizados o de aluminio y será afectado por solventes a base de hidrocarburos halogenados. **NO USE HIDROCARBUROS HALOGENADOS EN EL EQUIPO PowrLiner 3100.**

EXPLICACION DEL RIESGO

Hay tres elementos fundamentales que condicionan el riesgo de los hidrocarburos halogenados, a saber:

1. **Presencia de solventes de hidrocarburos halogenados.**
2. **Componentes galvanizados o de aluminio.**
3. **Equipo capaz de tolerar presión.**

Cuando todos estos elementos están presentes, el resultado puede ser una explosión sumamente violenta. La reacción puede tener lugar aun cuando la cantidad de aluminio o metal galvanizado sea muy pequeña: cualquier cantidad de aluminio es excesiva. La reacción no puede predecirse. El hecho de que un solvente a base de hidrocarburos halogenados haya sido usado anteriormente sin accidentes (corrosión o explosión) NO significa que dicho uso no es peligroso.

DANGER!

RISQUE D'INCENDIE OU D'EXPLOSION

La vitesse du liquide à travers la pompe le flexible et la buse produit de l'électricité statique. Si tous les éléments du matériel de pulvérisation ne sont pas mis à la terre de manière adéquate, ils risquent de favoriser la production d'étincelles et de rendre le système dangereux. Des étincelles peuvent également se produire lors de branchement ou débranchement d'un cordon d'alimentation électrique ou lors de la mise en marche d'un moteur au gaz. De telles étincelles sont susceptibles d'enflammer les vapeurs des solvants ou les liquides pulvérisés. Veuillez donc toujours à brancher le pulvérisateur dans une prise située à au moins 7,5m du pulvérisateur et de la zone de travail.

MISE EN GARDE: Toujours rincer l'appareil dans un récipient métallique distinct après avoir enlevé le bec de pulvérisation et en tenant fermement le pistolet contre le côté du récipient afin d'assurer une mise à la terre appropriée et de prévenir une décharge statique susceptible de causer des blessures graves.

Si vous remarquez la formation d'étincelles sous l'effet de la présence d'électricité statique ou que vous ressentez une légère décharge électrique en cours d'utilisation du matériel, arrêtez immédiatement la pulvérisation. Assurez-vous que tous les éléments du système sont bien mis à la terre. Ne remettez pas le système en marche avant d'avoir résolu le problème.

MOTEUR ÉLECTRIQUE

Les moteurs électriques utilisés par TITAN ne sont pas protégés contre les explosions. Il est donc essentiel d'assurer une bonne ventilation de la zone de travail et des environs de la pompe. Il est également important de maintenir la pompe à une distance minimale de 7,5m de la zone de pulvérisation.

ATTENTION: N'introduisez jamais la pompe dans une zone de pulvérisation fermée. Ne nettoyez jamais nettoyer l'extérieur de la pompe à l'aide de solvants inflammables.

MOTEUR AU GAZ (le cas échéant)

N'introduisez jamais la pompe dans une zone de pulvérisation fermée. Veuillez à ce que les environs de la pompe soient toujours bien aérés. Ne placez aucun solvant à proximité du système d'échappement du moteur. (Ne remplissez jamais le réservoir à carburant lorsque le moteur tourne ou s'il est chaud. Renversé sur une surface chaude, le gaz pourrait s'enflammer et provoquer un incendie.) Veuillez à toujours bien raccorder le fil de terre situé à l'arrière du moteur à un objet mis à la terre (par exemple, une conduite d'eau). **REMARQUE:** Pour plus de détails sur les mesures de sécurité et d'entretien pertinentes, consultez le manuel fourni avec le moteur.

SECTION HYDRODYNAMIQUE—SOLVANTS

Les solvants à hydrocarbure halogéné sont explosifs en présence de pièces galvanisées ou en aluminium dans un système hydrodynamique fermé (pressurisable) (pompes, radiateurs, filtres, soupapes, pistolets pulvérisateurs, réservoirs, etc.) L'explosion provoquée pourrait donner lieu à des lésions corporelles graves ou même mortelles et/ou à de sérieux dégâts matériels. Certains produits d'entretien, revêtements, peintures et autres liquides contiennent des solvants à hydrocarbure halogéné. Les appareils pulvérisateurs de la Titan Tool Inc. comportent des pièces en aluminium et des composants galvanisés sensibles aux solvants à hydrocarbure halogéné. **N'EMPLOYER PAS D'HYDROCARBURES HALOGENÉS DANS LE MATÉRIEL PowrLiner 3100.**

EXPLICATION DU RISQUE

Le danger que présentent les solvants à hydrocarbure halogéné se caractérise par trois éléments clés:

1. La présence de solvants à hydrocarbure halogéné
2. La présence de pièces en aluminium ou galvanisées
3. Un matériel capable de supporter des pressions élevées

La combinaison de ces trois éléments peut donner lieu à une explosion extrêmement violente. La réaction peut se produire en présence d'une quantité minimale d'aluminium ou de métal galvanisé. En fait, la moindre trace d'aluminium en constitue déjà trop.

La réaction est imprévisible. Toute utilisation antérieure de solvant à hydrocarbure halogéné n'ayant donné lieu à aucun incident (corrosion ou explosion) NE CONSTITUE NULLEMENT un signe de sécurité.

HALOGENATED SOLVENTS

DEFINITION -- Any hydrocarbon solvent containing any of the elements as listed below:

Consult your material supplier to determine whether your solvent or coating contains Halogenated Hydrocarbon Solvents.

SOLVENTES HALOGENADOS

DEFINICION -- Cualquier solvente a base de hidrocarburos que contenga cualquiera de estos elementos:

EJEMPLOS (lista parcial):

Consulte la información suministrada por su proveedor de materiales para determinar si un solvente o revestimiento contiene solventes de Hidrocarburos Halogenados.

SOLVANTS HALOGÉNÉS

DÉFINITION -- Tout solvant à hydrocarbure contenant l'un des éléments suivants:

EXEMPLES (liste incomplete):

Pour déterminer si vos solvants ou revêtements contiennent des solvants a hydrocarbure halogéné, consultez votre fournisseur.

Fluorine (F) "-fluor-" **Chlorine (Cl) "-chloro-"**
Bromine (Br) "-bromo-" **Iodine (I) "-Iodo-"**

EXAMPLES

(not all-inclusive):

FLUOROCARBON SOLVENTS:

Dichlorofluoromethane

Trichlorofluoromethane

BROMINATED SOLVENTS:

Ethylene dibromide

Methylene chlorobromide

Methyl bromine

IODINATED SOLVENTS:

N-butyl iodide

Methyl iodide

Ethyl iodide

Propyl iodide

CHLORINATED SOLVENTS:

Carbon tetrachloride

Chloroform

Ethylene dichloride

METHYLENE CHLORIDE or

DICHLOROMOETHANE

Monochlorobenzene

Orthodichlorobenzene

Perchloroethylene

TRICHLOROETHANE

Trichloroethylene

Monochlorotoluene

Startup Procedure

WARNING: High pressure device, thoroughly read and understand the warning section located in the owner's manual and the label on the sprayer.

IMPORTANT: Whenever starting or cleaning this sprayer, always reduce engine or motor speed. Additionally, never operate this sprayer for more than 10 seconds without fluid, this can cause unnecessary wear to the packings.

Do not operate dry.

Step 1: Before you plug in the power cord to the electrical outlet or start the gas engine, do the following:

- A. Tighten suction and return hoses, then install a minimum of 50' (15,2 m) of nylon airless spray hose and airless gun. Do not install tip yet, or remove if installed.

WARNING: If you are supplying your own hoses and spray gun, be sure they are electrically grounded and rated for at least 3200 psi (221 bar) working pressure, and that the gun has a tip guard. This is to reduce the risk of serious bodily injury caused by static sparking and fluid injection or over-pressurization, causing a component rupture.

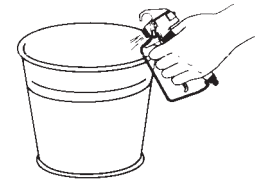
- B. Preset pressure control by turning the pressure control knob counterclockwise to lowest setting.
- C. Place on-off switch in the off position.
- D. Be sure to fill the Wet Cup 1/3 full with Piston Seal Lubricant.

Step 2: GAS ENGINE

- A. **Check the engine oil level.** For instructions refer to the engine manual supplied.
- B. **Fill the gas tank.** Be sure the engine is cool. Refueling a hot engine could cause a fire. Close the black fuel shut off lever located under the air cleaner. **Use unleaded high quality gasoline.**
- C. If a secondary hose and gun is not installed, be sure the plug is secure.
- D. Place the suction tube into container containing mineral spirits.
- E. Open the fuel shut off lever by pushing it in the direction of the arrow.
- F. Move the throttle lever away from fuel tank.
- G. Close the engine choke lever, located beneath the air cleaner.
- H. Turn the engine switch on. Turn pressure relief prime valve down to prime position.
- I. Pull the starter rope. Holding the frame with one hand, pull the rope rapidly and firmly. Continue to hold the rope as you let it return. Pull and return rope until engine starts.



Lock position



Remove Tip and Safety Guard when flushing

Step 3: Flush oil out of new paint pump: Oil is used by the factory for testing and protection. It is necessary to flush out with mineral spirits before you begin to spray.

- A. Pour 1/2 gallon mineral spirits into a metal container and insert syphon and return tube.
- B. Turn pressure relief prime valve down to prime position and turn unit on. Increase pressure slightly. Let solvent cycle for approximately 30 seconds. Then tilt syphon tube above container and let the sprayer pump itself dry. Then turn unit off. If you are going to use water based paints, repeat procedure using water.

Step 4: Prepare the paint according to manufacturer's recommendations. Remove any skin that may have formed and stir. Strain the paint through a fine nylon mesh bag to remove particles that could clog spray tip.

Step 5: Place syphon and return tubes into paint container. Turn pressure relief priming knob, located on side of pump, down for priming.

Step 6: Turn sprayer on and turn up pressure slightly. Let circulate on prime until no bubbles filter up through the paint.

Step 7: Hold gun firmly against a metal container, disengage trigger lock and trigger gun against side of container. Then, while gun is triggered, turn the pressure relief valve to the spray position. Keep the gun triggered until all the air is forced out of the system and the paint flows freely. Release the trigger and engage gun safety lock; set gun down while unit pressurizes.

Step 8: Check for leaks. If any leaks occur, follow the proper pressure relief procedure before tightening.

Step 9: Turn off sprayer and relieve pressure by turning pressure relief prime knob to prime.

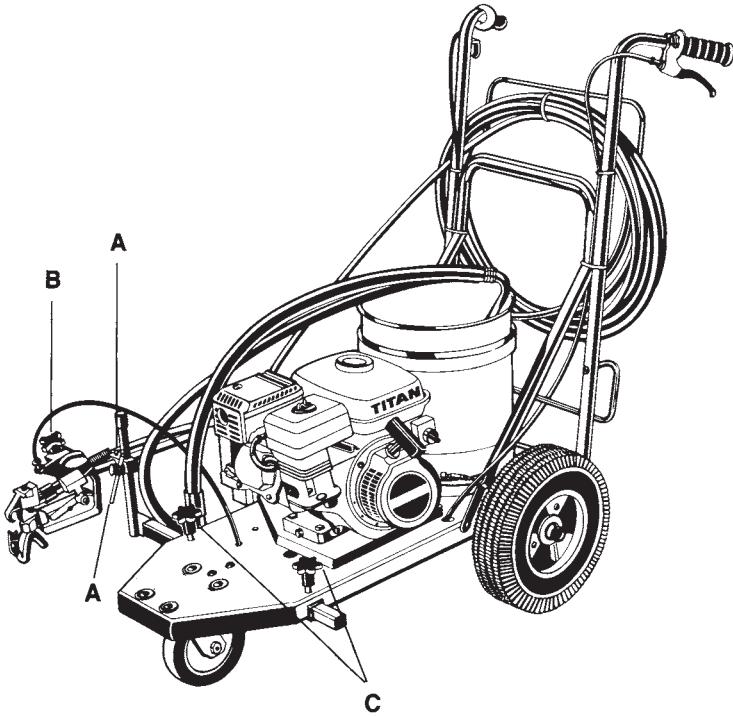
Step 10: With gun trigger lock engaged, install tip and guard as instructed in separate tip or gun manual.

Step 11: Turn sprayer on and rotate the pressure relief prime valve to the spray position.

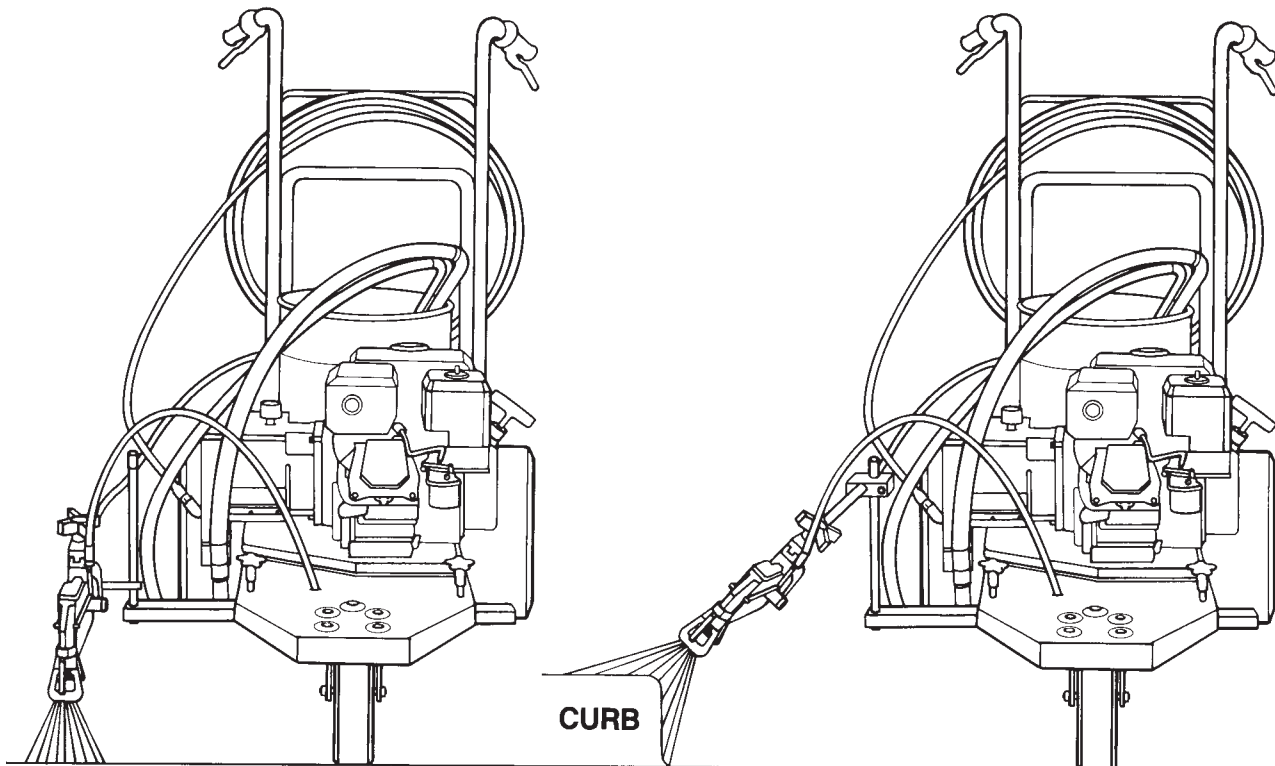
Step 12: Test on cardboard to check spray pattern. Adjust pressure just until the spray from gun is completely atomized.

Application Techniques

WARNING: Before changing gun position or adjusting gun angle, follow pressure relief procedure outlined on page 5 of this manual.



- 1) Always spray with water rather than paint to confirm gun position.
- 2) Adjust pressure to achieve proper atomization. Using too much pressure will result in excessive overspray.
- 3) Always be sure that the **Powliner 3100** is in motion before triggering and releasing the gun. This will apply a cleaner more uniform line.
- 4) Always check gun position on paper or cardboard before proceeding.
- 5) When applying parking lot lines, position the spray tip so it is beyond the front end of frame. This will allow the line to end at the curb.
- 6) Applying markings or lines that do not meet a curb, adjust gun so it is parallel with front caster. This will lessen the effects of bumps on spray pattern.
- 7) To adjust gun position loosen clamps A and C; this will allow the gun to move up, down, forward or back and out and in.
- 8) Should hose be removed for general painting or stenciling, make sure when winding hose back up on brackets, make sure when winding hose back up on brackets, not to make the coil too tight. A tight coil will transmit pump vibration to spray gun. This effect will result in a wavy pattern.
- 9) When returning gun to gun mount assembly, make sure that gun is as far forward as possible before tightening knob B.



The spray tip should be a distance of 6" from the surface to maintain correct spray pattern.

The spray tip is in the shape of an arrow. It should always point at your work. If you are spraying a curb, aim spray tip at the top corner of the curb.

Cleaning Procedure

WARNING: High pressure device -- Follow all safety warnings located on sprayer and in the owner's manual. Always clean using low pressure, with the spray tip removed. Always flush into a separate metal container away from the sprayer. Never clean the exterior of the pump while the pump is plugged in or operating.

PRESSURE RELEASE PROCEDURE:

Step 1: Engage trigger safety lock on gun.

Step 2: Turn off pump and release fluid pressure by turning the pressure relief prime valve located on the side of pump down.

LOW PRESSURE CLEANING PROCEDURE:

Step 3: Remove tip and let soak clean, in a small container of solvents or water. Adjust fluid pressure to lowest possible setting.

Step 4: Turn the pump on. Tilt syphon tube above paint container, allowing the sprayer to pump itself dry through the return tube.

Step 5: Have available container of hot soapy water if spraying latex (or suitable solvent for oil base paints). Do not clean with mineral spirits if using latex paint as this will make jelly.

Step 6: Place syphon tube into container with hot soapy water or solvents. Let circulate for 2-3 minutes, then turn unit off.

Step 7: To save paint still in spray hose, turn prime valve up to spray position, then carefully trigger gun into and against side of metal paint container. Be careful of splashing. When cleaning solution appears, shut off gun and place gun in a separate metal container. Repeat process if spraying with two guns.

Step 8: Trigger gun and let cleaning solution circulate for approximately 2-3 minutes, then turn unit off.

Step 9: Turn prime valve down and remove suction tube from cleaning container. Turn unit on and allow sprayer to pump dry.

Step 10: Take a clean container of water or solvent and using low pressure pump through system until clear. If cleaning with water, pump a small amount of mineral spirits or TITAN LS-10 solution through pump. This will protect against corrosion.

Step 11: Take suction tube out of container and let sprayer run itself dry.

Step 12: Check filter on pump and gun. Clean or replace.

Step 13: Remove spray tip from solvent, clean with a soft bristle brush and store in a dry place.

TROUBLESHOOTING AIRLESS GUN

PROBLEM	PROBABLE CAUSE	REMEDY
Spitting gun	1. Air in system 2. Dirty gun 3. Needle assembly out of adjustment 4. Broken or chipped seat	1. Inspect connections for air leaks 2. Disassemble and clean 3. Inspect and adjust 4. Inspect and replace
Gun will not shut off	1. Worn or broken needle & seat 2. Needle assembly out of adjustment 3. Dirty gun	1. Replace 2. Adjust 3. Clean
Gun does not spray	1. No paint 2. Plugged filter or tip 3. Broken needle in gun	1. Check fluid supply 2. Clean 3. Replace

TROUBLESHOOTING SPRAY PATTERNS

PROBLEM	PROBABLE CAUSE	REMEDY
Tails	1. Inadequate fluid delivery 2. Fluid not atomizing 3. Insufficient velocity 4. Material too cohesive 5. Tip worn past pump capacity	1. Increase pressure 2. Change to smaller tip 3. Clean gun & pump filters 4. Reduce viscosity 5. Replace
Heavy centered pattern	1. Worn tip 2. Tip may be chipped	1. Replace 2. Replace
Distorted pattern	1. Plugged, worn or chipped tip	1. Clean or replace
Pattern expanding and contracting (Surge)	1. Leak in suction tube 2. Not enough hose 3. Tip too large or worn	1. Tighten 2. Use a minimum of 50' (15m) of 1/4" high pressure hose 3. Replace with a new or smaller tip

AIRLESS TIP SELECTION

Tips are selected by the orifice size and fan width at 6" from the surface. (1704 is .017 orifice and a 4" wide pattern.)

Recommendations:

Application	Tip
Parking Lot Lines	.645-1704*
Side Marks Long	.645-2304
Athletic Lines	.645-1502
Crosswalks	.645-1910
Stencilling	.641-317
Curbs	.645-1706
General Painting	.641-517*

* Packaged with unit.

Flushing Specifications

1. New Sprayer: Oil is used by the factory for testing and protection. It is necessary to flush unit before spraying.

A. If spraying water-base paint, flush with mineral spirits followed by water.

B. If spraying oil-base paint, flush with mineral spirits only.

2. Changing from water-base to oil base: Flush with water, then mineral spirits.

3. Changing from oil-base to water-base: Flush with mineral spirits, then water.

4. Changing colors: Flush with a compatible solvent such as water or mineral spirits.

5. Storage: To assure proper performance and long life, always clean the sprayer thoroughly before storing.

A. Water-Base Paint: Flush with water, then mineral spirits and leave the pump, gun and hose filled with mineral spirits. Shut off and unplug the sprayer and turn pressure relief prime valve to prime to relieve pressure. Return prime valve to spray position.

B. Oil-Base Paint: Flush with mineral spirits. Shut off and unplug the sprayer, turn the pressure relief prime valve to prime to relieve pressure and leave open. Return prime valve to spray position.

• During storage the power cord must be coiled around cord holder to avoid damage.

6. Start-Up After Storage:

A. Water-Base Paint: Flush out mineral spirits with water.

B. Oil-Base Paint: Flush out the mineral spirits with the material to be sprayed.

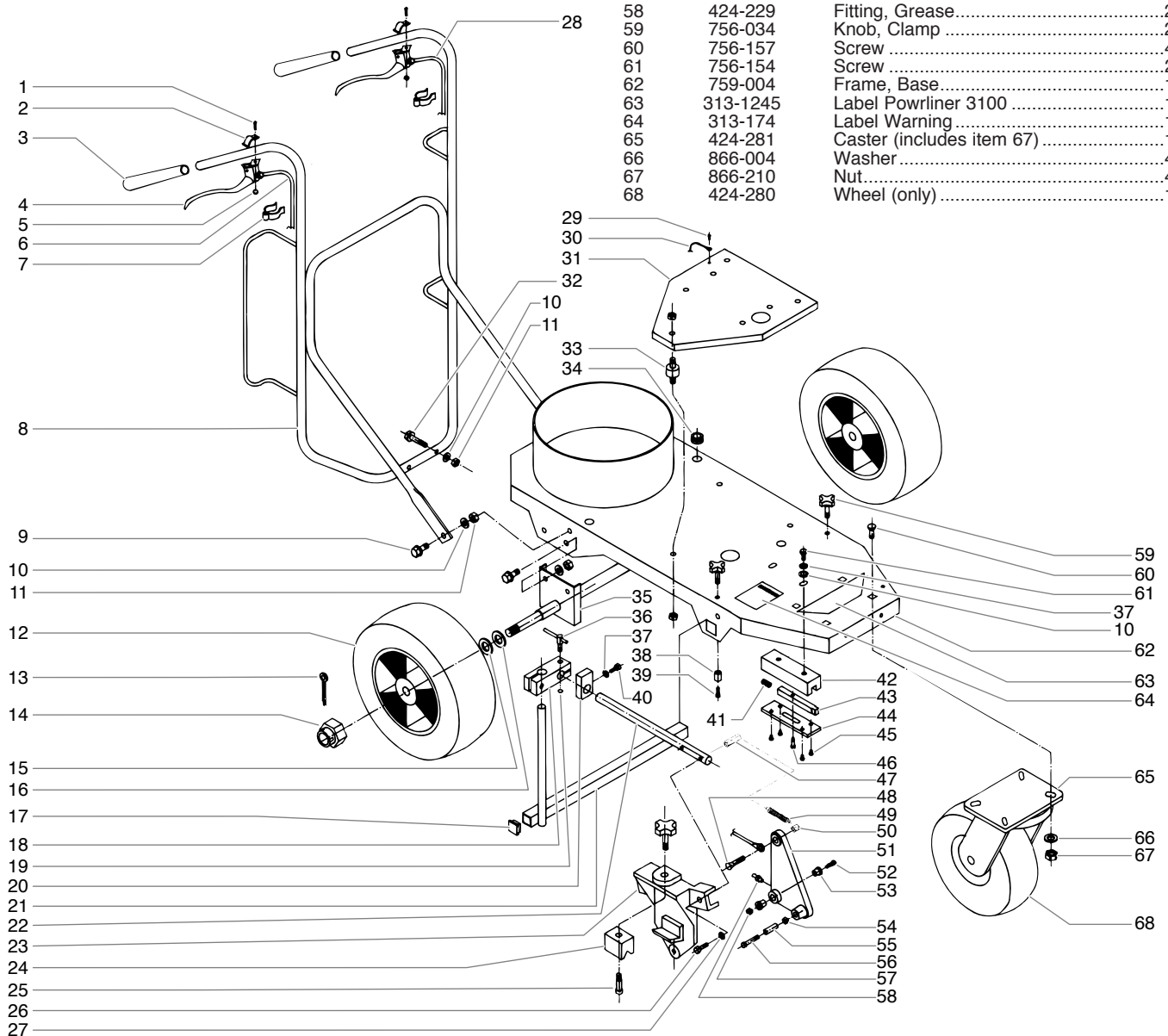
Always dispose of mineral spirits in a proper way.

TROUBLESHOOTING AIRLESS PUMP

PROBLEM	PROBABLE CAUSE	REMEDY
Electric motor won't run	<ol style="list-style-type: none"> 1. Unit unplugged or circuit fuse blown 2. Pressure setting too low 3. Brushes on motor are worn 4. Electric motor burned out 5. Switch defective 6. Fuse in pump blown 	<ol style="list-style-type: none"> 1. Check 2. Increase 3. Replace 4. Replace 5. Replace 6. Replace
Gas engine won't start	<ol style="list-style-type: none"> 1. Engine switch not on 2. Engine oil level low 3. Out of gas 4. Spark plug cable disconnected or bad plug 	<ol style="list-style-type: none"> 1. Turn on 2. Try starting engine. If light on rear glows, add oil 3. Fill 4. Connect or replace
Pump won't prime	<ol style="list-style-type: none"> 1. Air leak in syphon hose. 2. Insufficient pressure 3. Clutch worn or damaged (Gas models) 	<ol style="list-style-type: none"> 1. Check syphon tube O-Ring and/or let paint circulate in prime position 2. Increase pressure 3. Replace
Insufficient material flow	<ol style="list-style-type: none"> 1. No paint 2. Syphon strainer clogged 3. Pump/gun filter clogged 4. Pump will not prime, material too heavy 5. Engine not tuned properly (Gas) 6. Worn clutch (Gas models) 	<ol style="list-style-type: none"> 1. Check supply 2. Clean 3. Clean & replace 4. Thin material 5. Tune engine 6. Service
Pump will not maintain pressure	<ol style="list-style-type: none"> 1. Air leak in system 2. Air leak in syphon tube 3. Inlet valve not seating 4. Worn packings 5. Dirty or worn ball valves 6. Worn valve seats 7. Worn prime valve 	<ol style="list-style-type: none"> 1. Tighten connections 2. Tighten, check for leaks 3. Service or clean 4. Replace 5. Clean or replace 6. Reverse 7. Replace
Not enough pressure	<ol style="list-style-type: none"> 1. Pressure setting too low 2. Plugged filters 3. Spray tip too big or worn 4. Engine or motor rpm too low (Gas) 	<ol style="list-style-type: none"> 1. Increase 2. Clean or replace 3. Change or replace 4. Increase throttle
Excessive surge at spray gun	<ol style="list-style-type: none"> 1. Wrong type of hose 2. Spray tip too big or worn 3. Excessive pressure 	<ol style="list-style-type: none"> 1. Replace with a minimum 50' grounded nylon braid high pressure hose 2. Change or replace 3. Decrease pressure and engine speed
Paint leaks into oil cup	<ol style="list-style-type: none"> 1. Worn out packings 	<ol style="list-style-type: none"> 1. Replace

Frame Assembly

Item	Part #	Description	Quantity	Item	Part #	Description	Quantity
1	757-092	Screw	4	29	770-413	Screw, Self Tapping	2
2	759-035	Strap	2	30	770-737	Ground wire	1
3	424-245	Grip, Handle	2	31	756-062	Plate, Engine	1
4	756-136	Lever	2	32	862-468	Screw	2
5	226-001	Nut	4	33	757-042	Mount, Vibration	3
6	759-008	Cable, Caster Lock	1	34	756-122	Grommet	3
7	424-247	Cable Clip	4	35	759-005	Axle Weldment	1
8	759-020	Handle	1	36	756-130	Clamp	2
9	756-154	Screw	6	37	862-002	Washer	3
10	862-001	Washer	16	38	757-022	Rod, Clamp	2
11	862-410	Nut	14	39	759-110	Screw	2
12	756-067	12" Wheel/Tire	2	40	862-436	Screw	1
13	756-079	Cotter Pin	2	41	756-087	Spring	1
14	756-078	Nut	2	42	759-013	Block, Guide	1
15	756-080	Spring Washer	2	43	759-012	Pin, Caster Lock	1
16	710-058	Axle Washer	2	44	759-014	Cover, Block	1
17	756-056	Plug	2	45	700-784	Screw	4
18	756-029	Block, Slide	1	46	759-016	Screw	1
19	761-405	Ring, Snap	2	47	759-057	Spring holder (long)	1
20	424-226	Clamp, Cable	1	48	858-637	Screw	1
21	756-045	Bracket, Sliding	1	49	759-058	Spring	1
22	424-224	Arm, Support	1	50	759-056	Spring holder (short)	1
23	424-201	Holder, Gun	1	51	424-202	Lever	1
24	756-035	Clamp	1	52	860-936	Screw, Shoulder	1
25	858-912	Screw, Shoulder	1	53	424-248	Brg. Flange	2
26	858-636	Screw	2	54	858-603	Nut	1
27	858-002	Washer, Lock	2	55	424-249	Brg. Sleeve	1
28	759-011	Cable, Trigger Pull	1	56	858-653	Screw	1
				57	858-601	Nut	1
				58	424-229	Fitting, Grease	2
				59	756-034	Knob, Clamp	2
				60	756-157	Screw	4
				61	756-154	Screw	2
				62	759-004	Frame, Base	1
				63	313-1245	Label Powliner 3100	1
				64	313-174	Label Warning	1
				65	424-281	Caster (includes item 67)	1
				66	866-004	Washer	4
				67	866-210	Nut	4
				68	424-280	Wheel (only)	1



PowrLiner 3100 Assembly

WARNING: Before proceeding, follow the Pressure Relief Procedure found previously in this manual. Additionally, follow all other warnings to reduce the risk of an injection injury, injury from moving parts or electric shock. Always unplug the sprayer before servicing!

When transporting a unit with a gas engine, make sure to shut fuel off.

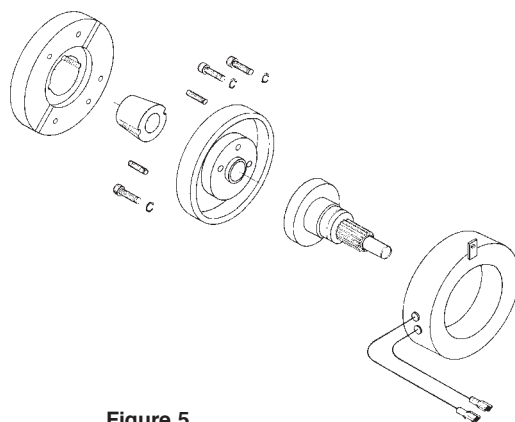
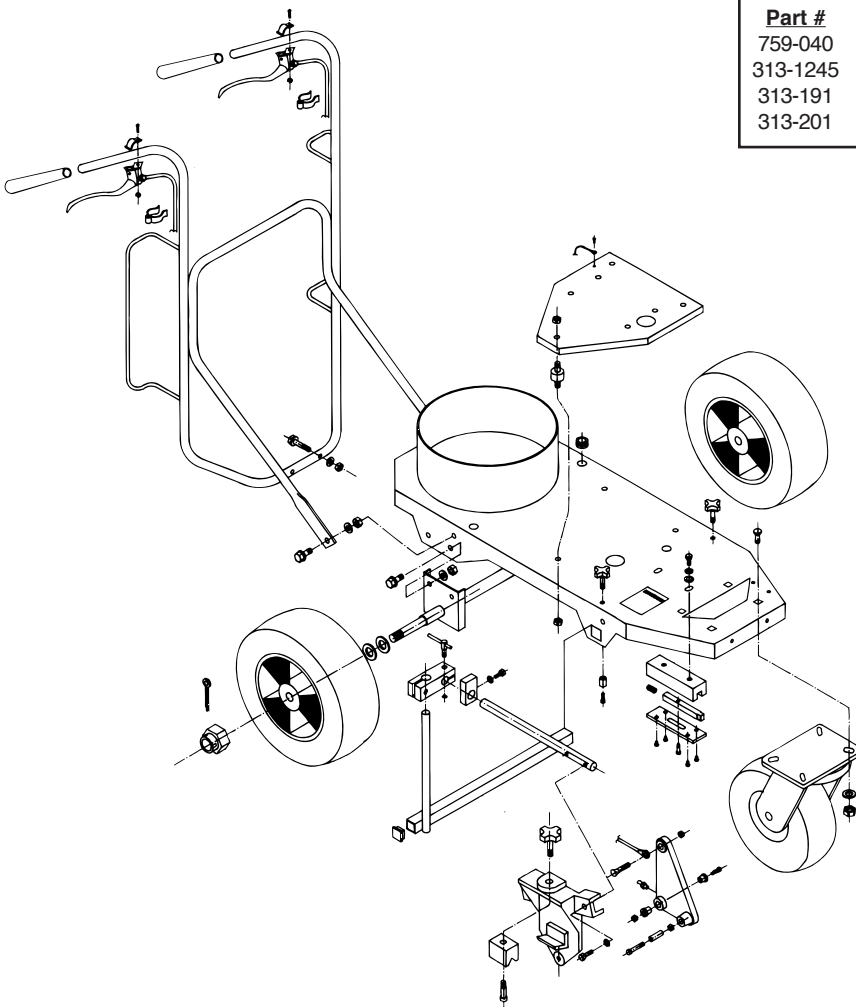
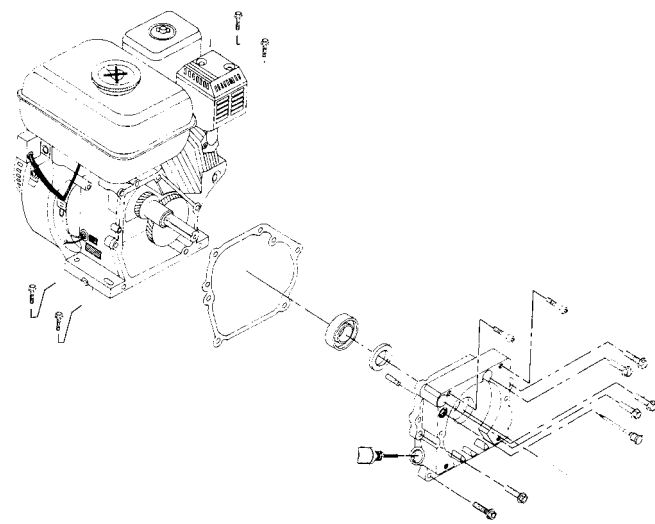
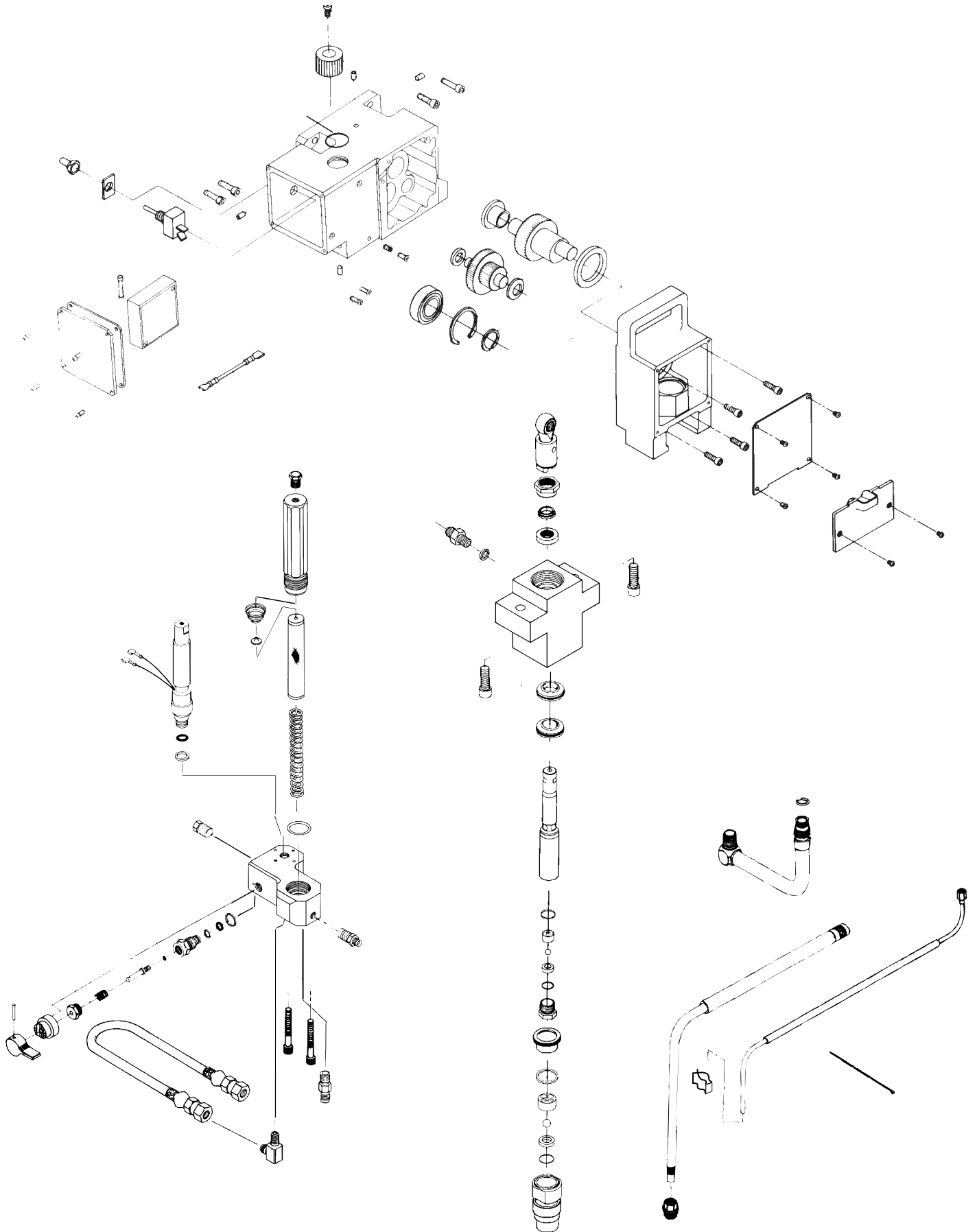


Figure 5



Replacement Labels		
Part #	Description	Quantity
759-040	Front Plate (front cover label).....	1
313-1245	PowrLiner 3100.....	1
313-191	Warning Label (in English).....	1
313-201	Warning/Attention Label (in French).....	1



Engine Assembly

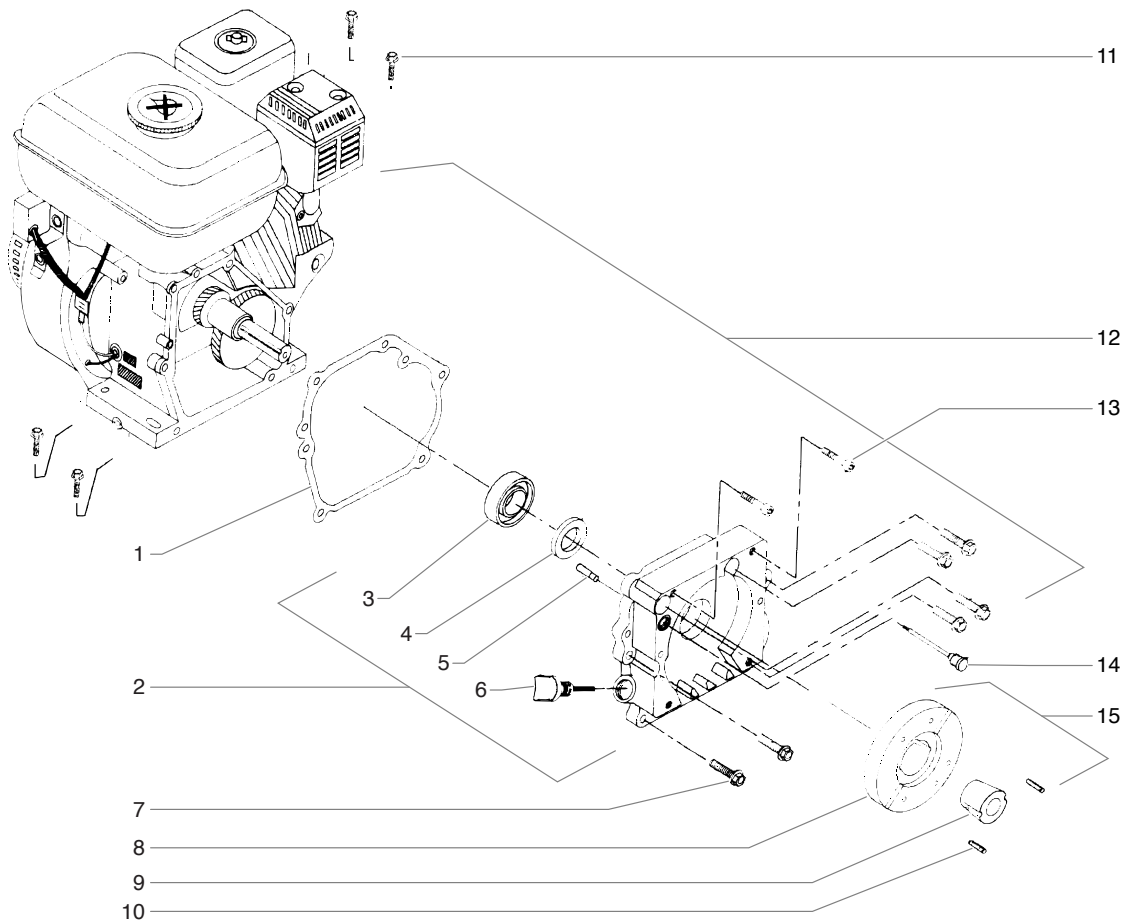


Figure 6

<u>Item</u>	<u>Part #</u>	<u>Description</u>	<u>Quantity</u>
1	750-042	Gasket	1
2	750-086	Engine Mount (includes items 3 & 4).....	1
3	750-044	Engine Bearing	1
4	750-043	Engine Seal	1
5	700-722	Terminal	1
6	730-158	Dipstick	1
7	750-051	Screw.....	6
8	755-209	Clutch Plate	1
9	763-550	Bushing (Incl. #74).....	1
10	763-566	Screw.....	2
11	700-652	Screw.....	6
12	755-117	Engine Assembly (includes items 1-7, 11, & 14).....	1
13	750-018	Screw.....	2
14	730-184	Electrical Connector.....	1
15	755-150	Clutch Plate & Bushing.....	1

Important Facts Concerning Your PowrLiner 3100

WARNING: When transporting a unit with a gas engine, make sure to shut the fuel off.

The Powrliner 3100 contains a clutch that engages when the unit is pumping. The pump's pressure control device engages and disengages the clutch to control pressure. To prevent unnecessary wear to the clutch, it is advisable to adjust your engine speed and pressure setting so as to limit the amount of times the clutch engages and disengages. This can be accomplished as follows:

Example

Operating one gun with .019 tip: To reduce clutch wear, reduce engine speed by adjusting the throttle to a low or medium setting and increase pressure only until heavy ends of spray pattern have been eliminated.

Example

Operating one gun with .023 tip: Increase engine speed to a high setting and increase pressure until heavy ends of spray pattern have been eliminated.

Example

Spraying light-bodied materials at low pressure. To reduce surging at the gun and to decrease clutch wear, reduce engine speed to idle and reduce pressure until desired spray pattern is achieved.

Maintenance

WARNING: Before proceeding, follow the Pressure Relief Procedure outlined on Page 5. Additionally, follow all other warnings to reduce the risk of an injection injury, injury from moving parts or electric shock. Always unplug the sprayer before servicing!

Caution: For detailed engine maintenance and specifications, refer to the separate engine manual supplied.

Routine Maintenance

Daily: Check and fill the gas tank. After the first 20 hours of operation: Drain the oil and refill with clean oil.

Daily: Check the engine oil level and fill as necessary.

Weekly: Remove the cover of the air filter and clean the element. Replace the element if necessary. If operating in an unusually dusty environment, check the filter daily and replace if necessary.

Replacement elements can be purchased from your local **TITAN** Dealer.

Weekly: Check the level of the Piston Seal Lubricant (PSL) in the displacement pump packing cup. Fill it if necessary. Keeping PSL in the cup helps lubricate the packings and piston. After each 50 hours of operation: Change the engine oil.

Spark Plug: use only a (NKG) BP6ES plug. Gap the plug to 0.025 - 0.030 in. (0.7 - 0.8 mm). Be sure to use a spark plug wrench when installing and removing the plug.

Service / Replacement of Clutch Assembly

WARNING: Before proceeding, follow the Pressure Relief Procedure outlined on Page 5. Additionally, follow all other warnings to reduce the risk of an injection injury, injury from moving parts or electric shock. Always unplug the sprayer before servicing!

NOTE: All service work on the Engine must be done by a Honda Authorized Service Center. To locate one in your area call Titan Customer Service at 1-800-526-5362.

1. Remove (4) screws #54 located on page 20.
2. Inspect clutch plate #8 for wear.
3. If worn, remove 2 screws #10 and pull clutch from engine shaft.
4. To reinstall new clutch, slide clutch plate assembly #8 on engine shaft.
5. Install clutch gap tool 755-221 behind clutch plate and push clutch against tool till tool touches the engine mount #2.
6. Tighten screws #10.
7. Reassemble engine assembly #12 with allen screws #54 on page 20.

Gear Box Assembly

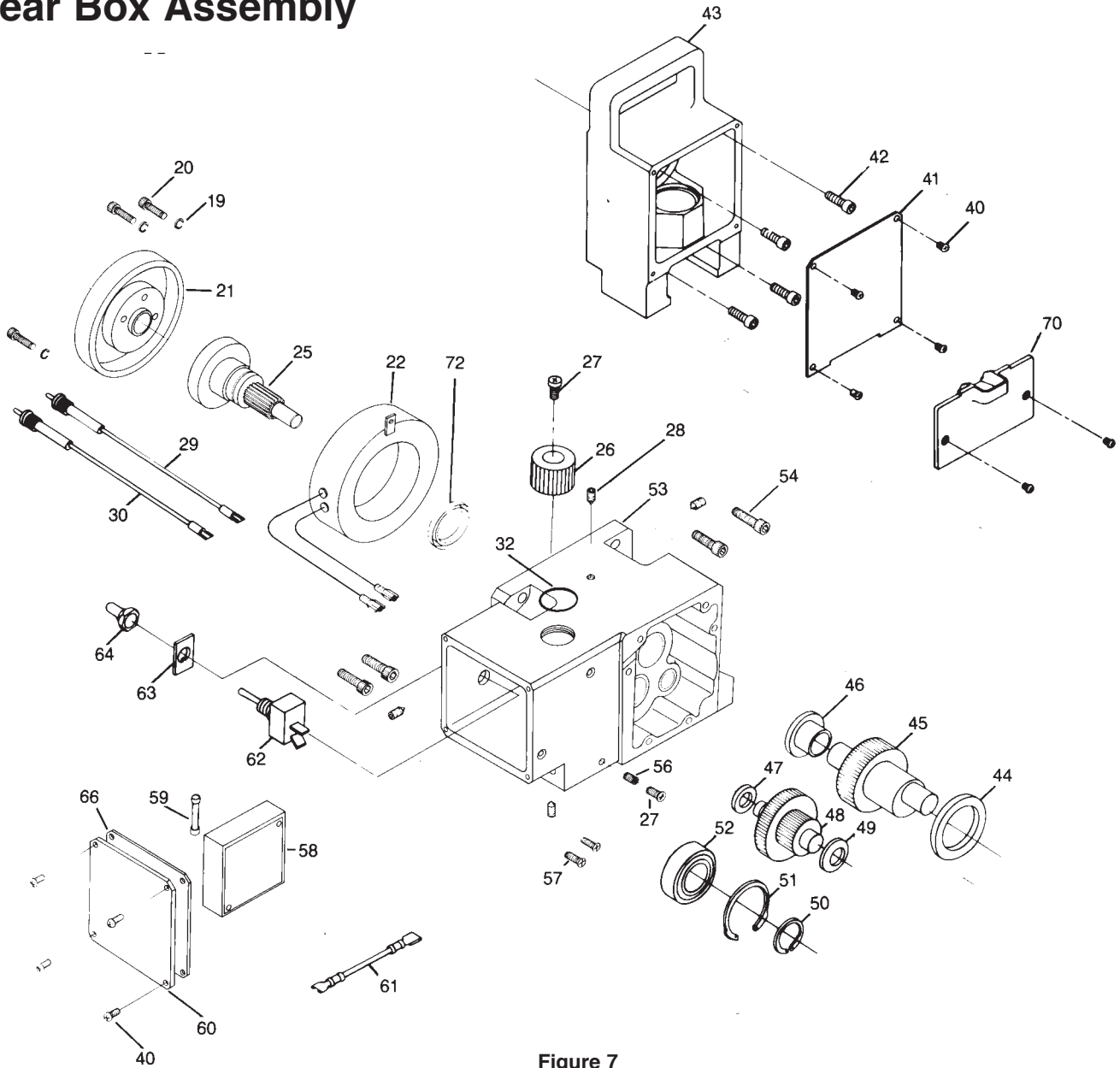


Figure 7

Item	Part #	Description	Quantity	Item	Part #	Description	Quantity
19	763-551	Washer	3	49	700-514	Thrust Washer	1
20	755-218	Screws	3	50	730-144	Snap Ring	1
21	755-203	Clutch Rotor.....	1	51	750-016	Snap Ring	1
22	755-216	Coil.....	1	52	750-015	Ball Bearing	1
25	755-201	Drive Shaft & Pinion	1	53	755-211	Gear Box HSG Ass'y	1
26	700-771	Adjustment Knob	1	54	730-148	Screw	4
27	700-784	Screw	2	56	710-127	Set Screw	1
28	763-525	Screw	4	57	730-145	Screw	2
29	730-390	Connector	1	58	763-557	Clutch Starter.....	1
30	730-151	Connector	1	59	730-146	5 AMP Fuse.....	1
32	700-811	O-Ring	1	60	761-132	Switch Cover Plate	1
40	730-260	Screw	11	61	765-072	Switch to Starter	1
41	759-040	Cover	1			Wire	
42	700-681	Screw	4	62	700-646	On/Off Switch.....	1
43	750-008	Pump HSG Ass'y.....	1	63	700-775	On /Off Plate	1
44	700-680	Thrust Washer	1	64	700-645	Rubber Boot.....	1
45	730-360	Crank Shaft.....	1	66	761-192	Insulator Plate.....	1
46	730-088	Thrust Washer	1	70	700-791	Safety Plate	1
47	700-688	Thrust Washer	1	72	730-172	Clutch Seal	1
48	730-167	Output Pinion Ass'y	1				

Gear Box Assembly Procedures

Service / Replacement of the Clutch Rotor

WARNING: Before proceeding, follow the Pressure Relief Procedure outlined on Page 5. Additionally, follow all other warnings to reduce the risk of an injection injury, injury from moving parts or electric shock.

1. Remove (4) screws #54.
2. Remove Engine Assembly #12 (on pg. 18).
3. Remove (3) Screws #20.
4. Remove Clutch Rotor #21.
5. To install new Rotor, reverse procedures above.

Replacement of the On/Off Switch

WARNING: Before proceeding, follow the Pressure Relief Procedure outlined on Page 5. Additionally, follow all other warnings to reduce the risk of an injection injury, injury from moving parts or electric shock.

1. Remove the Cover Plate and Insulator #60 & 66.
2. Disconnect the two black wires from the On/Off Switch #62.
3. Remove the Rubber Boot and On/Off Plate #64 & 63 with a wrench.
4. Remove the On/Off Switch #62.
5. Install a new Switch and reattach the Plate and Rubber Boot. Tighten securely.
6. Reconnect the two black wires to the On/Off Switch.
7. Reinstall the Cover Plate and Insulator with Warning Label facing out.

Gear Repair / Service

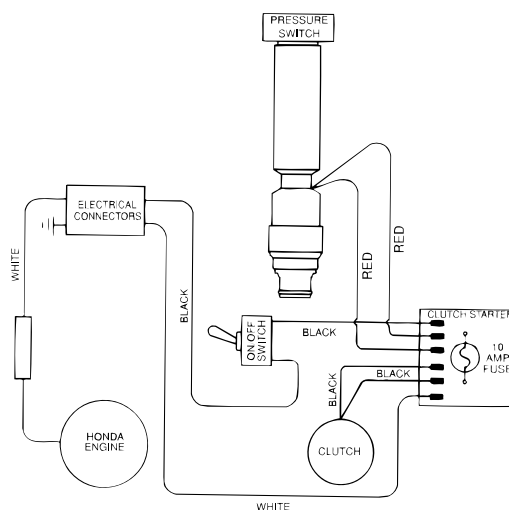
WARNING: Before proceeding, follow the Pressure Relief Procedure outlined on Page 5. Additionally, follow all other warnings to reduce the risk of an injection injury, injury from moving parts or electric shock.

1. Remove safety plate #70, from front of pump.
2. Remove front cover #41.
3. Remove (4) socket head screws #42 and slide pump housing assembly #43 from gear box housing #53.
4. Inspect gears beginning with crank shaft assembly #45, then output pinion gear #48.
5. Reassemble by reversing steps 1–4 above. When reassembling, make sure that all washers are in place and that gears and bearings are properly lubricated.
6. Remove Cover #41 and grease the Crankshaft located within the Pump Housing #43 and the Crank Slide & Connecting Rod #300 (on page 24) every 100 hours.

Replacement of Clutch Starter

WARNING: Before proceeding, follow the Pressure Relief Procedure outlined on Page 5. Additionally, follow all other warnings to reduce the risk of an injection injury, injury from moving parts or electric shock.

1. Remove the Cover Plate and Insulator #60 & 66.
2. Disconnect the six wires that connect to the Clutch Starter #58.
3. Remove the two screws #57.
4. Reassemble in reverse order. Refer to the Wiring Diagram for the correct placement of the wires.



Filter Block Assembly

Item	Part #	Description	Quantity
1	730-083	Filter Spring	1
2	702-251	Adapter	1
3	761-525	Pressure Control.....	1
		(includes items 4 & 5)	
4	700-499	O-Ring	1
5	700-881	Gasket	1
6	227-027	Plug.....	2
7	700-258	Bypass Valve Assembly	1
8	700-537	Gasket	1
9	221-012	O-Ring	1
10	222-012	O-Ring	1
11	700-246	Bypass Housing	1
		(includes items 9 & 10)	
12*	700-721	#005 O-Ring	1
13	700-250	Bypass Valve Stem	1
14	700-244	Spring	1
15	700-248	Bypass Valve	1
		Retainer	
16	700-252	Bypass Cam Base with Pin	1
17	700-759	Dowel Pin.....	1
18	700-697	Bypass Valve Handle	1
19	316-516	Hose	1
20	490-106	Elbow	1
21	702-011	Maxi Filter HSG	1
22	730-067	Filter Cartridge	1
23	757-105	Filter Core.....	1
24	702-303	O-Ring	1
25	702-009	Filter HSG	1
26	227-006	1/4" Fitting.....	1
27	730-262	1/4-20 UN Screw	2
28	700-699	Fitting	1
29	702-305	Filter HSG Assembly	1
		(excludes items 3, 4, 5, & 27)	
*	700-897	Optional PTFE O-Ring (not shown)	1
**	700-890	Bypass O-Ring Tool (not shown)	1

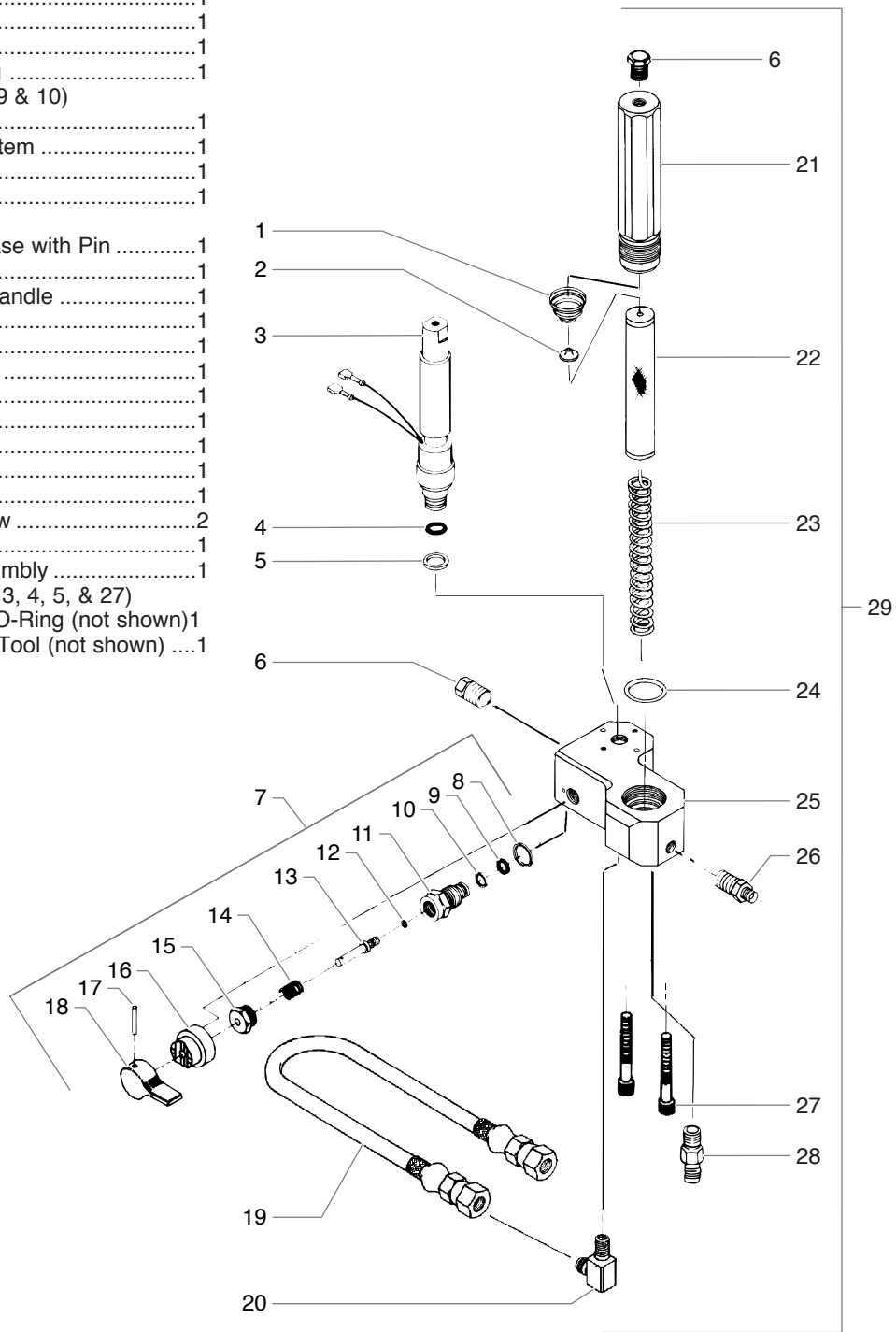


Figure 8

Filter Block Assembly Procedures

Pressure Switch Replacement

NOTE: See also Figure 7 on page 20.

WARNING: Before proceeding, follow the Pressure Relief Procedure outlined on page 5. Additionally, follow all other warnings to reduce the risk of an injection injury, injury from moving parts or electric shock.

1. Remove socket head cap screws.
2. Remove electrical cover plate #60 (on pg. 20), located near pressure switch and disconnect two red wires from clutch starter #58 (on pg. 20).
3. Remove screw #27 (on pg. 20) from pressure switch adjustment knob and slide knob off.
4. Remove screw #27 (on pg. 20) located on side of gear box housing #53 (on pg. 20) and using a 1/8" allen wrench remove set screw #56 (on pg. 20), until pressure switch #3 is able to slide down through. Feed electrical wires down at the same time.
5. Insert new switch assembly #3 into housing while carefully working the wires into the switch box. Using needle nose pliers, reconnect wires to motor starter.
6. Making sure that the switch assembly is fully inserted, tighten set screw #56 (on pg. 20) with a 1/8" allen wrench until the switch assembly is secure. Reattach adjustment knob #26 (on pg. 20).
7. Inspect O-Rings #4 and #5 on switch assembly.
8. Install insulator plate #66 (on pg. 20) and plate #60 (on pg. 20).
9. The pressure switch is factory calibrated so no adjustment is required.

Service / Replacement of the Pressure Relief Prime Valve

WARNING: Before proceeding, follow the Pressure Relief Procedure outlined on Page 5. Additionally, follow all other warnings to reduce the risk of an injection injury, injury from moving parts or electric shock.

1. Remove the Dowel Pin #17 from Bypass Valve Handle #18.
2. Remove Handle #18 and Bypass Cam #16.
3. Using a wrench, loosen Bypass Housing #11 and unscrew.
4. Unscrew Bypass Retainer #15 and remove Bypass Valve Stem #13.
5. Inspect ball on end of Stem #13 and O-Ring #12. Clean or replace if worn.
6. Screw completed assembly into Filter Block #25. Tighten securely with wrench.
7. Install Bypass Cam #16 over Bypass Retainer #15, lubricate with grease. Line up Dowel Pin #17 on Cam #18 with hole on Filter Block #25.
8. Using Dowel Pin #17 line up Stem #13 with hole on Handle #18. Secure Handle with Dowel Pin #17.
9. **IMPORTANT:** If Handle #18 rotates 360° check Pin on Cam #16.

Service / Replacement of Filter

WARNING: Before proceeding, follow the Pressure Relief Procedure outlined on Page 5. Additionally, follow all other warnings to reduce the risk of an injection injury, injury from moving parts or electric shock.

Pump Filter

1. Unscrew Filter Housing #21.
2. Remove Filter Cartridge #22. Clean or replace.
3. Inspect O-Ring #24. Clean or replace.
4. Reattach Filter Housing #21.

Gun Filter

WARNING: Follow all safety precautions as described in high pressure warning section before proceeding. If your spray gun leaks or spits at the tip when you release the trigger, the needle or seat is dirty, worn or damaged and must be cleaned or replaced.

Replacement or Removal of Filter:

1. First pull down on trigger safety guard and swing away from handle.
2. Unscrew handle from spray head.
3. Unscrew left hand threaded filter from spray head.

NOTE: Left handed thread requires turning the filter clockwise to remove.

4. Screw new or cleaned filter into the head. (To reinstall left hand thread turn counterclockwise.)
5. Reattach handle to head and secure safety trigger guard.

NOTE: If filter breaks off in the head use a small wood screw to remove.

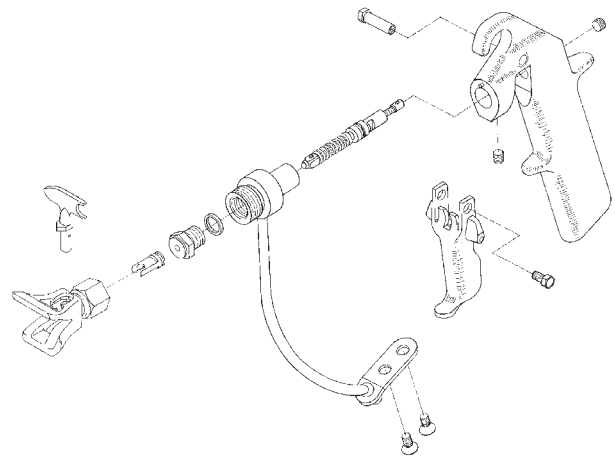
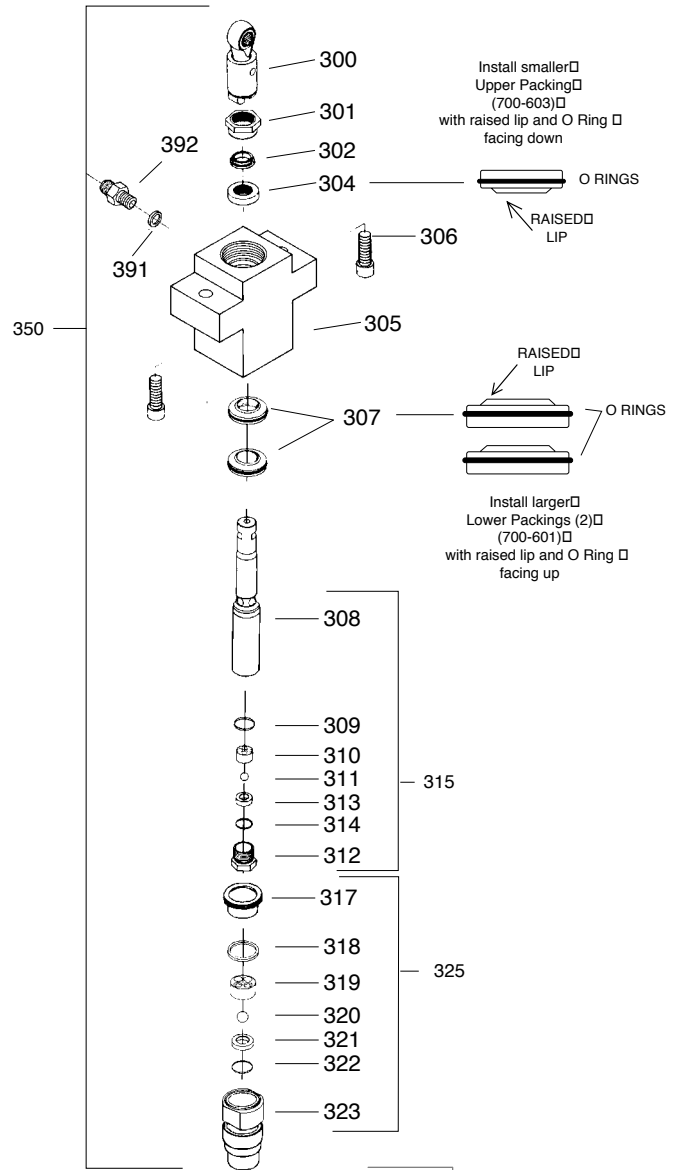


Figure 9 For more detail, part number information and assembly drawings at larger scale, please see the SGX-20 Professional Airless Gun Owner's Manual (#313-001).

Fluid Section Assembly

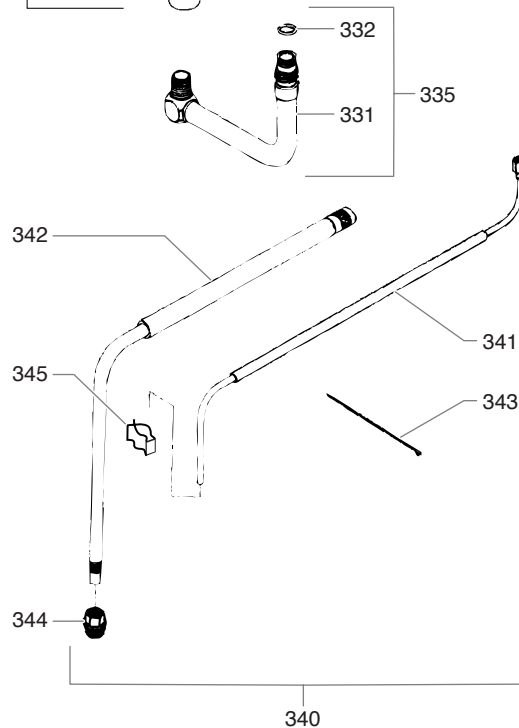
Item	Part #	Description	Quantity
300	700-735	Crank & Slide Connecting Rod Ass'y.	1
301	730-508	Retainer	1
302	700-587	Upper Guide	1
304	700-603	Upper Seal	1
305	730-505	Pump Housing	1
306	700-678	Head Cap Screw	2
307	700-601	Lower Seal	2
308	730-506	Piston Rod	1
309	762-111	Seal	1
310	762-135	Upper Cage	1
311	762-144	Outlet Valve Ball	1
312	762-073	Outlet Valve Housing & Seat	1
313	762-134	Seat	1
314	762-057	O-Ring	1
315	730-515	Piston Assembly	1
317	730-509	Bushing	1
318	700-821	Seal	1
319	730-510	Cage	1
320	762-145	Ball	1
321	762-137	Inlet Valve Seat	1
322	762-058	O-Ring	1
323	730-507	Foot Valve Housing	1
325	730-520	Foot Valve Assembly	1
347	762-202	Packing Tool	1
331	700-211	Pump Syphon Tube	1
332*	700-201	O-Ring (Viton)	1
335	700-213	Pump Syphon Tube Ass'y.	1
391	700-804	Gasket	1
392	490-109	Fitting	1
350	730-501	Fluid Section Complete (items 301-305, 307, 323, 391, 392)	1
	*700-024	Urethane O-Ring (optional, not shown)	1

NOTE: Repacking kit P/N 730-401 includes items 302, 304, 307, 311, 346, 318, 309, and 391. Also included with the repacking kit are piston guide tool P/N 700-793 and packing grease P/N 700-203.



Syphon Assembly

Item	Part #	Description	Quantity
340	756-112	Syphon Assembly (items 341-345)	1
341	756-111	Bypass Assembly	1
342	756-110	Syphon Assembly (includes item 345)	1
343	700-742	Hose Tie Wrap	1
344	700-805	Inlet Screen	1
	700-900	30 Mesh Inlet Screen (optional, not shown)	1
345	755-135	Clip	1



Fluid Section Assembly and Syphon Assembly Procedures

Pump Section Repair and Service

WARNING: Before proceeding, follow the Pressure Relief Procedure outlined on Page 5. Additionally, follow all other warnings to reduce the risk of an injection injury, injury from moving parts or electric shock.

1. Remove Safety Plate #70 (on pg. 20).
2. Stop the sprayer at the top of its stroke so that the piston is in its highest position. Turn off and/or unplug the sprayer.
3. Remove the bypass hose assembly #341 with a wrench and the syphon assembly #342 by pulling up on the hose and turn counterclockwise.
4. Tilt pump back for easy access to pump section.

Seat Service and Repair

The design of Titan's Epic Fluid Section allows access to the inlet and outlet valves and seat without completely disassembling the Fluid Section. It is possible that the valves may not seat properly because of debris stuck in the inlet or outlet seat. Follow the instructions below for access to those areas.

5. Place a wrench on the Foot Valve #323 and unthread.
6. Clean out all debris. Examine Valve and Seat. If damaged replace. Continue if necessary or re-install.
7. Place a 3/4" socket on the Outlet Valve Housing and Seat #312 and remove.
8. Clean out all debris. Examine Valve and Seat. If damaged, reverse or replace.
9. Reassemble and test unit. Should unit not perform properly, consult the Troubleshooting Guides on pages 13 & 14 of this manual or continue with the Repair and Packing Replacement instructions below.

Service/Replacement of Upper (Outlet) Valve

10. To clean or replace upper valve, remove Valve Housing #312 while piston assembly #315 is still attached to pump. This will prevent the piston from rotating.
11. Remove upper valve cage #310 and Outlet Valve Seat #313 & Ball #311. Clean and inspect along with housing #312. Replace if worn or damaged. Use fine sandpaper to remove dried paint.
12. Reattach assemblies #309–312 to piston #308, and secure tightly with a wrench.

Packing Replacement

13. Unscrew hose #19 (on pg. 22) from fitting #392.
14. Remove screws #306 with a 3/8" allen wrench and slide pump section down so that the piston is clear to slide off.
15. Inspect polyethylene seal #391 on fitting after removing pump section. Clean or Replace.
16. Remove Retainer #301 and slide piston down through pump housing #305 by lightly tapping on top of piston assembly #315. Clean and inspect piston for wear. Replace if necessary.
17. Remove packings #304 and #307 from pump housing #305 and replace with a new set. Always insert packings with the raised side facing into pump mount assembly.
18. Reattach Retainer #301 and make sure that the upper guide #302 is cleaned and undamaged.
19. Insert pump housing items #301–#307 into a vise, leaving enough room to slide piston through bottom of pump housing #305.
20. Using the piston guide tool (included in repacking kit), which slides over the top of the piston assembly #315, insert the piston through bottom of pump housing #305 and tap lightly with a rubber mallet on bottom of piston until inserted.
21. Align flats on piston so that it is perpendicular to housing #305 and will line up when reattaching to connecting rod. This can be achieved by rotating the piston by placing a wrench on the valve housing assembly #312 and turning.

CAUTION: Never use a wrench on the piston itself. This could cause damage to the piston and cause leakage.

22. Slide assembled pump housing with piston assembly onto connecting rod and secure with screws #306. Be certain that outlet hole is facing towards pump motor.

NOTE: Packing does not need to be adjusted.

23. Reattach hose #19 (on pg. 22) to fitting #392. Be sure that polyethylene gasket #391 is in place.
24. Reattach lower foot valve assembly #325
25. Reattach pump syphon tube assembly #335, and rotate to correct position.
26. Reattach pressure relief tube and syphon hose and tighten securely.

NOTE: Repacking Kit P/N 730-401 is available. For best results use all parts supplied in this kit.

MODEL #	SERIAL #	DATE PURCHASED	COMPANY NAME
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Equipment Job History

In order to help you track the superior performance of your Titan Sprayer we recommend you keep this log for your records. We feel you may find it useful for gauging on-site performance, invoicing or overtime and your estimator's reference.

Job Name	Foreman's Name	Type of Coating	Tips Used		Date Completed
Date Begun	Site	Gallons Sprayed	Sizes	Quantity	
Job Name	Foreman's Name	Type of Coating	Tips Used		Date Completed
Date Begun	Site	Gallons Sprayed	Sizes	Quantity	
Job Name	Foreman's Name	Type of Coating	Tips Used		Date Completed
Date Begun	Site	Gallons Sprayed	Sizes	Quantity	
Job Name	Foreman's Name	Type of Coating	Tips Used		Date Completed
Date Begun	Site	Gallons Sprayed	Sizes	Quantity	
Job Name	Foreman's Name	Type of Coating	Tips Used		Date Completed
Date Begun	Site	Gallons Sprayed	Sizes	Quantity	
Job Name	Foreman's Name	Type of Coating	Tips Used		Date Completed
Date Begun	Site	Gallons Sprayed	Sizes	Quantity	
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Date Begun	Site	Gallons Sprayed	Sizes	Quantity	
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Job Name	Foreman's Name	Type of Coating	Tips Used		Date Completed
Date Begun	Site	Gallons Sprayed	Sizes	Quantity	
Job Name	Foreman's Name	Type of Coating	Tips Used		Date Completed
Date Begun	Site	Gallons Sprayed	Sizes	Quantity	
Job Name	Foreman's Name	Type of Coating	Tips Used		Date Completed
Date Begun	Site	Gallons Sprayed	Sizes	Quantity	
Job Name	Foreman's Name	Type of Coating	Tips Used		Date Completed
Date Begun	Site	Gallons Sprayed	Sizes	Quantity	
Job Name	Foreman's Name	Type of Coating	Tips Used		Date Completed
Date Begun	Site	Gallons Sprayed	Sizes	Quantity	
Job Name	Foreman's Name	Type of Coating	Tips Used		Date Completed
Date Begun	Site	Gallons Sprayed	Sizes	Quantity	

PUMP	OPERATING PRESSURE	MAXIMUM TIP SIZE	WEIGHT	AMP DRAW MAX psi	MAXIMUM GPM OUTPUT	MAXIMUM HOSE LENGTH**	POWER SOURCE	PRODUCT NUMBER PUMP ONLY	PRODUCT NO. COMPLETE (with 50' Hose & LX-80 Gun)
DP-30	0-3000 psi	.017 w/1 gun	37 lbs	8	.33	100 ft	1/2 HP totally enclosed AC motor	703-095	703-100
440HP	0-3200 psi	.021 w/1 gun	27 lbs	9	.44	100 ft	3/4 hp AC motor	700-155	700-135
447HPX	0-3200 psi	.023 w/1 gun	33 lbs	11	.55	150 ft	.85 HP totally enclosed AC motor	765-100	765-110
660HPX	0-3200 psi	.025 w/1 gun	56 lbs	15	.72	200 ft	1.0 HP totally enclosed AC motor	702-405	702-410
690HPG	0-3200 psi	.025 w/1 gun	78 lbs	-	.80	250 ft	4.0 HP Honda engine	755-095	755-100
1100HPX	0-3200 psi	.031 w/1 gun .021 w/2 guns	90 lbs	15	1.0	300 ft	1.75 HP totally enclosed AC motor	781-101 (120v) HR 781-105-CE (230v) HR 781-103 (120v) LR 781-107-CE (230v) LR	781-100 (120v) HR 781-104-CE (230v) HR 781-102 (120v) LR 781-106-CE (230v) LR
1200HPG	0-3200 psi	.035 w/1 gun .025 w/2 guns .019 w/3 guns	125 lbs		1.35	300 ft	5.5 HP Honda engine	783-101 HR 783-111 LR	783-100 HR 783-110 LR
PowrLiner 3100	0-3200 psi	.023 w/1 gun	150 lbs		.72	250 ft	4.0 HP Honda engine		759-300
PowrLiner 3500	0-3200 psi	.031 w/1 gun .021 w/2 guns	245 lbs		1.35	400 ft	5.5 HP Honda engine		759-350 (w. 1 gun) 759-351 (w/ 2 guns)

** Hose length depends on material being sprayed, hose diameter and tip size.

*** DP-30 supplied with 25' of hose and a Profit Gun.

TITAN Warranty for the PowrLiner 3100

Titan Tool, Inc., ("Titan") warrants that at the time of delivery to the original purchaser for use ("End User"), the equipment covered by this warranty is free from defects in material and workmanship. Titan's obligation under this warranty is limited to replacing or repairing without charge those parts which, to Titan's reasonable satisfaction, are shown to be defective within twelve (12) months with the exception of defects in the parts of the drive train/gear box or pressure control assembly which will be repaired or replaced for twenty four months after sale to the End User. This warranty applies only when the unit is installed and operated in accordance with the recommendations and instructions of Titan.

This warranty does not apply in the case of damage or wear caused by abrasion, corrosion or misuse, negligence, accident, faulty installation, substitution of non-Titan component parts, or tampering with the unit in a manner to impair normal operation.

Defective parts are to be returned to an authorized Titan sales/service outlet. All transportation charges, including return to the factory, if necessary, are to be borne and prepaid by the End User. Repaired or replaced equipment will be returned to the End User transportation prepaid.

THERE IS NO OTHER EXPRESS WARRANTY. TITAN HEREBY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES INCLUDING, BUT NOT LIMITED TO, THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, TO THE EXTENT PERMITTED BY LAW. THE DURATION OF ANY IMPLIED WARRANTIES WHICH CANNOT BE DISCLAIMED IS LIMITED TO THE TIME PERIOD SPECIFIED IN THE EXPRESS WARRANTY. IN NO CASE SHALL TITAN LIABILITY EXCEED THE AMOUNT OF THE PURCHASE PRICE. LIABILITY FOR CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES UNDER ANY AND ALL WARRANTIES IS EXCLUDED TO THE EXTENT PERMITTED BY LAW.

TITAN 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 TITAN. THOSE ITEMS SOLD, BUT NOT MANUFACTURED BY TITAN (SUCH AS GAS ENGINES, SWITCHES, HOSES, ETC.) ARE SUBJECT TO THE WARRANTY, IF ANY, OF THEIR MANUFACTURER. TITAN WILL PROVIDE THE PURCHASER WITH REASONABLE ASSISTANCE IN MAKING ANY CLAIM FOR BREACH OF THESE WARRANTIES.

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