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OPERATIONS-PARTS MANUAL



AT-16 *Track Buggy*

056841 - 01/2013

allen
ENGINEERING
CORPORATION
819 South 5th Street
Paragould, AR 72450

NOTICE

This manual, or a copy of it, must be kept with the machine at all times.
There is a manual storage container located on the machine for your convenience.

Track Buggy

OPERATIONS - PARTS

MANUAL

This manual covers the products listed below:

| <u>Part No.</u> | <u>Description</u> |
|-----------------|-----------------------------------|
| 056800 | BUGGY, TRACK AT-16 ELECTRIC START |

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Allen Products are covered under one or more of the following patent numbers:

U.S. Design Patents: 344,736; 400,542; 400,544; 402,998; 402,999; 403,332; 404,041; 404,042; 410,931; 413,127; 416,564; 465,897; 466,909; 474,203.

U.S. Utility Patents: 5,108,220; 5,238,323; 5,328,295; 5,352,063; 5,405,216; 5,476,342; 5,480,257; 5,480,258; 5,533,831; 5,562,361; 5,567,075; 5,613,801; 5,658,089; 5,685,667; 5,803,658; 5,816,739; 5,816,740; 5,890,833; 5,934,823; 5,967,696; 5,988,938; 5,988,939; 6,019,433; 6,019,545; 6,048,130; 6,053,660; 6,089,786; 6,106,193; 6,857,815; 5,288,166; 6,582,153 B1, 7,108,449; 7,114,876; 7,316,523; 7,690,864 B2

Canadian Patents: 2,039,893.

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Limited Warranty

LIMITED WARRANTY and LIMITATION OF LIABILITY

Allen Engineering Corporation ("Allen") warrants its products to be free of defects in material or workmanship for the following periods:

A. New Machines and Parts.....One Year

Warranty period begins on first day of use by End User. This first day of use is established by the date of a completed Allen Warranty Card or a Bill of Sale to the End User. All warranty is based on the following limited warranty terms and conditions, including the disclaimer of implied warranties and consequential damages.

1. Allen's obligation and liability under this warranty is limited to repairing or replacing parts if, after Allen's inspection, there is determined to be a defect in material or workmanship. Allen reserves the choice to repair or replace.

2. If Allen chooses to replace the part, it will be at no cost to the customer and will be made available to the Allen Distributor, Dealer, or Rental Center from whom the End User purchased the product.

3. Replacement or repair parts, installed in the product, are warranted only for the remainder of warranty period of the product as though they were the original parts.

4. Allen does not warranty engines. Engine warranty claims should be made directly to an authorized factory service center for the particular engine manufacturer.

5. Allen's warranty does not cover the normal maintenance of products or its components (such as engine tune-ups and oil & filter changes). The warranty also does not cover normal wear and tear items (such as belts and consumables).

6. Allen's warranty will be void if it is determined that the defect resulted from operator abuse, failure to perform normal maintenance on the product, modification to product, alterations or repairs made to the product without the written approval of Allen. Allen specifically excludes from warranty any damage to any trowels resulting from an impact to the rotors.

7. Impact damage is not covered under the Allen Gear Box warranty.

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

9. Allen will pay freight on warranty replacement parts at worldwide standard ground rates. No warranty replacement parts will be shipped air freight at the expense of Allen. Allen only pays outbound freight charges when sending warranty replacement parts to the customer via ground service. Allen does not pay any inbound freight. However, if Allen determines this to be a warranted item, only then will Allen reimburse the customer for inbound freight at standard ground rates.

10. ALLEN ENGINEERING CORPORATION'S WARRANTY POLICY WILL NOT COVER THE FOLLOWING: TAXES; SHOP SUPPLIES; ENVIRONMENTAL SURCHARGES; AIR FREIGHT; TRAVEL TIME; LOSS OF TIME; INCONVENIENCE; LOSS OF RENTAL REVENUE; RENTAL COSTS OF EQUIPMENT USED TO REPLACE THE PRODUCT BEING REPAIRED; LOSS OF USE OF THE PRODUCT; COMMERCIAL LOSS; OR ANY OTHER CHARGES WHATSOEVER OR ANY LIABILITIES FOR DIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGE OR DELAY.

11. ALLEN ENGINEERING CORPORATION MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED. THIS LIMITED WARRANTY IS IN LIEU OF THE WARRANTY OF MERCHANTABILITY AND FITNESS. THERE ARE NO OTHER WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THIS DOCUMENT.

12. No Allen employee or representative is authorized to change this warranty in any way or grant any other warranty unless such change is made in writing and signed by an officer of Allen Engineering Corporation.

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Information Contained in this Manual



This manual provides information and procedures to safely operate and maintain the Allen Machine.

For your own safety and protection from personal injury, carefully read, understand, and observe the safety instructions described in this manual. Keep this manual or a copy of it with the machine at all times.

Always operate this machine in accordance with the instructions described in this manual. A well maintained piece of equipment will provide many years of trouble free operation.

This manual is divided into the following sections:

**SECTION 1
SAFETY**

**SECTION 2
OPERATIONS**

**SECTION 3
SERVICE**

**SECTION 4
PARTS**

Complete any warranty requirements as specified by the engine manufacturer in their instructions found inside the manual box located on the operator's control panel.

Your engine is not manufactured by Allen Engineering Corporation, Inc, and therefore is not covered under Allen Engineering Corporation, Inc warranty.

Your engine manufacturer should be contacted if you wish to purchase a parts manual or a repair manual for your engine.

Refer to enclosed owners engine manual for complete O&M instructions. See your battery manufacturer for battery warranty.

Dealer Information

Your Dealer has Allen Engineering Corporation trained mechanics and original Allen replacement parts. Always contact the Allen Dealer who sold you this machine for Allen Certified repairs and replacement parts.

Place Allen Dealer information below for future reference.

| | |
|----------------------|-----------------------|
| Dealer Name: | _____ |
| Phone #: | (____) - ____ - _____ |
| Address: | _____ |
| City: | _____ |
| State: | _____ |
| Zip: | _____ |
| Salesman: | _____ |
| Mobile Phone | _____ |
| Additional Comments: | _____ |
| | _____ |
| | _____ |



Ordering Parts

Section 4.0 contains illustrated parts lists for help in ordering replacement parts for your machine. Follow the instructions below when ordering parts to insure prompt and accurate delivery:

1. All orders for service parts - include the serial number for the machine. Shipment will be delayed if this information is not available.
2. Include correct description and part number from the "PARTS" section of this manual.
3. Specify exact shipping instructions, including the preferred routing and complete destination address.
4. DO NOT return parts to AEC without receiving written authorization from AEC. All authorized returns must be shipped pre-paid.
5. When placing an order, please contact the AEC dealer nearest you.

NOTE

All information, specifications, and illustrations in this manual are subject to change without notice and are based on the latest information at the time of publication.

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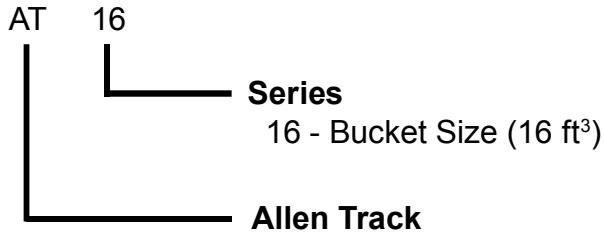
www.youtube.com/AllenMachinery

Model Number - Serial Number Codes

Manufacturer's Codes:

When ordering parts or requesting service information, you will always be asked to specify the model and serial numbers of the machine. The legends below specifically defines each significant character or group of characters of the Model Number and Serial Number codes.

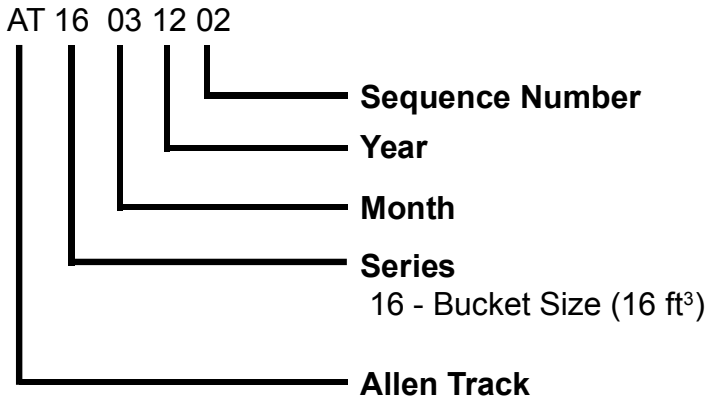
Model Number



Serial Number

The serial number found on the identification plate is a ten digit format. The model number identifies your machine and will ensure that you receive the correct replacement parts.

Serial Number Example



Unit Identification

Unit Identification Plate Location:

An identification plate listing the model number and the serial number is attached to each unit and is located on the bottom left hand corner of the operator control panel. See image below for serial number plate number location. This plate should not be removed at any time.

Please record the information found on this plate below so it will be available should the identification plate become lost or damaged. When ordering parts or requesting service information, you will always be asked to specify the model and serial numbers of the machine.

FILL IN FOR FUTURE REFERENCE

| | |
|-----------------|-------|
| Model Number: | _____ |
| Serial Number: | _____ |
| Date Purchased: | _____ |
| Purchased From: | _____ |

Serial # Plate Location



Technical Specifications

| MODEL | AT16 |
|---------------------------|--------------------------------|
| Engine | Kohler (27 hp) Electric Start |
| Payload | 2,500 lb. (1,134 kg) |
| Dimensions (L x H) | 97 in. x 50 in. (246 x 127 cm) |
| Length (with Platform Up) | 88.5 in. (225 cm) |
| Dimensions (Width) | 47 in. (119 cm) |
| Wheelbase / Track Length | 51 in. (130 cm) |
| Bucket Capacity | 16 cu. ft. (0.45 cu. m) |
| Weight | 1,475 lb. (669 kg) |
| Lift Cylinder | 2" Diameter (51 mm) |
| Dump/Return Speed Empty | 8 Seconds |
| Top Speed | 6 mph (8 kph) |
| Fuel Capacity | 6 gal. (22.7 L) |

The Allen AT-16 Track Drive Power Buggies, are intended for the transportation of concrete and material handling. The Track Buggy is equipped with a low dump height which provides clearance and enables the operator to maneuver over any form height. In addition the Track Buggy has a unique tub design that reduces concrete splatter outside the polyethylene tub (bucket).

A low center of gravity has been added into the Track Buggy's design which will provide safety when maneuvering the buggy in tight areas. A 6-gallon fuel tank allows for extended uninterrupted use. Maximum speed of the Track Buggy is rated at 6 MPH.

All Track Buggy operators must have training instructions before operating the buggy. For your safety, warnings are on the buggy and in this manual. Failure to obey these warning can cause severe injury or even death.

Understand the operation and features of the Track Buggy and what conditions it will be operated in. Know the rated load capacity, speed range, braking and steering characteristics, turning radius and operating clearances. Remember that the rain, snow, ice, loose gravel, soft ground, etc., can change the operating characteristics and capabilities of the Track Buggy.

Inspect the surface over which you will travel. Look for holes, drop offs and obstacles. Look for rough spots. Look for weak spots on docks, ramps or floor. Look for oil spills, wet spots and slippery surfaces. Look for soft soil, deep mud and standing water. Watch for anything that might make you lose control or cause the buggy to tip over.

If, during pre-operation inspection or operation, the buggy is found to be in need of repair or in any way unsafe, or contributes to an unsafe condition to the operator, the matter shall be reported immediately to the designated authority, and the buggy shall not be operated until it has been restored to proper operating condition. **DO NOT** make repairs or adjustments unless specifically authorized to do so.

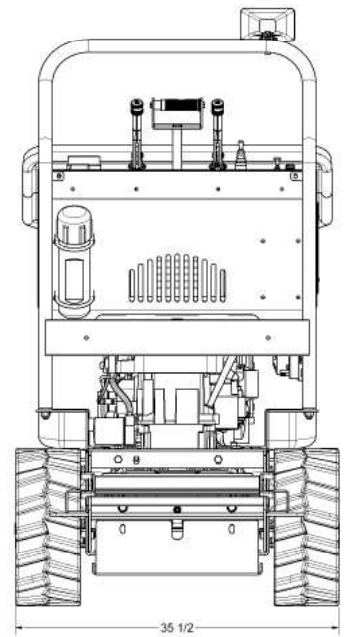
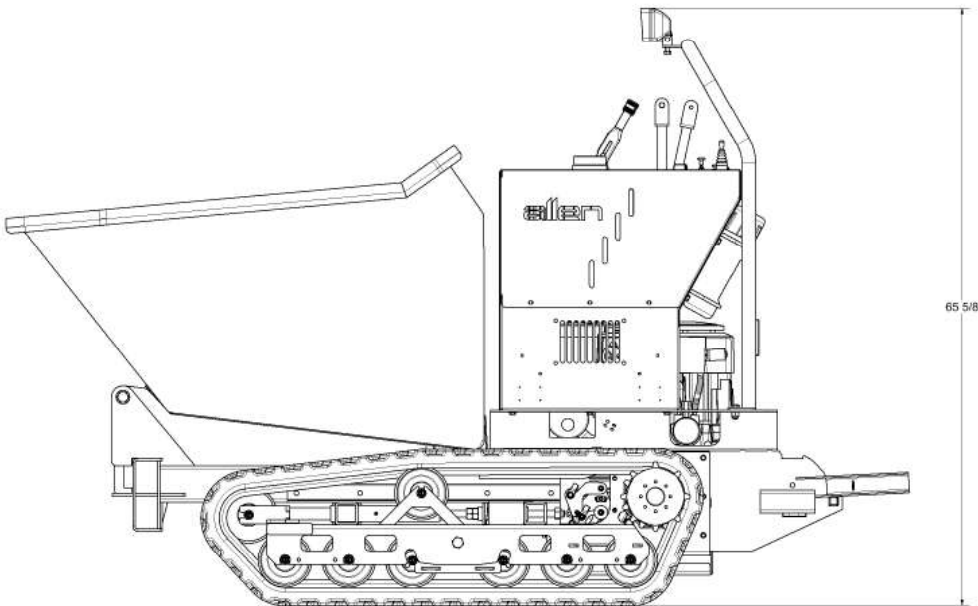
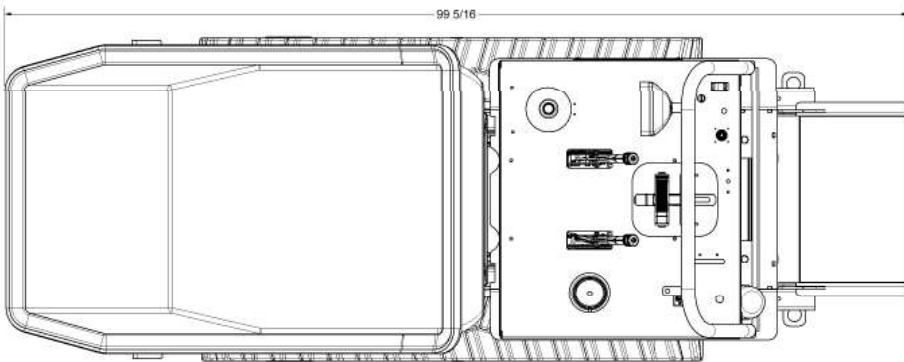
Engine Specifications

27 HP Kohler

| MODEL | CV740-3001 |
|----------------------------------------------------|---------------------------------------------|
| Weight | 108.0 lbs |
| Engine Displacement (cc) | 725 |
| Start Type | Electric |
| Engine Type | Command Pro V-Twin CV740-OHV |
| Rated Power (HP) | 27 |
| Torque (ft./lbs.) | 42 |
| Displacement (cu. in.) | 44 |
| Shaft Output | Vertical |
| Shaft Diameter (in.) | 1 1/8 |
| Shaft Length (in.) | 3 5/32 |
| Shaft End Tapped (Diameter (in.)/Threads per inch) | 7/16-20 |
| Shaft Rotation (From PTO Shaft Side) | Counterclockwise |
| Cylinders (qty.) | 2 |
| Cylinder Bore | Cast iron |
| Bore x Stroke (in.) | 3.30 x 2.60 |
| Compression Ratio | 9.0:1 |
| Cooling System | Air cooled |
| Air Cleaner Type | Dual element air filter w/ foam pre-cleaner |
| Fuel Tank | Not included |
| Fuel Type | Gasoline |
| Fuel Pump | Pulse |
| Fuel Filter | In line |
| Oil Capacity (qt.) | 2 |
| Lubrication System | Full pressure |
| Ignition System | Electronic |
| Carburetor | Fuel injection |
| Max. RPM | 3,600 |
| Charging System Amps | 20 |
| Muffler Included | Yes |
| Auto Compression Release | Yes |
| Bolt Circle (in.) | 10 |
| Dimensions L x W x H (in.) | 21 3/16 x 17 11/16 x 14 5/16 |
| EPA/CARB Approval (California Air Resource Board) | Yes |



Dimensional Specifications



Section 1
SAFETY



WARNING



CALIFORNIA — Proposition 65 Warning

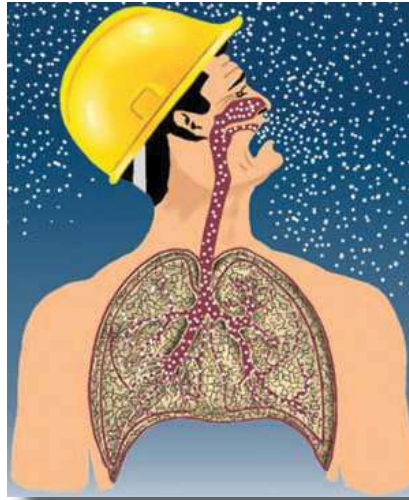
Engine exhaust and some of its constituents, and some dust created by power sanding, sawing, grinding, drilling and other construction activities contains chemicals known to the State of California to cause cancer, birth defects and other reproductive harm. Some examples of these chemicals are:

- Lead from lead-based paints.
- Crystalline silica from bricks.
- Cement and other masonry products.
- Arsenic and chromium from chemically treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: **ALWAYS** work in a well ventilated area, and work with approved safety equipment, such as dust masks that are specially designed to filter out microscopic particles.

Federal Regulations Respiratory Hazards

SECTION 1 SAFETY



WARNING

RESPIRATORY HAZARDS

Grinding/cutting/drilling of masonry, concrete, metal and other materials can generate dust, mists and fumes containing chemicals known to cause serious or fatal injury or illness, such as respiratory disease, cancer, birth defects or other reproductive harm. If you are unfamiliar with the risks associated with the particular process and/or material being cut or the composition of the tool being used, review the material safety data sheet and/or consult your employer, the material manufacturer/supplier, governmental agencies such as OSHA and NIOSH and other sources on hazardous materials. California and some other authorities, for instance, have published lists of substances known to cause cancer, reproductive toxicity, or other harmful effects.

Control dust, mist and fumes at the source where possible. In this regard use good work practices and follow the recommendations of the manufacturers or suppliers, OSHA/NIOSH, and occupational and trade associations. Water should be used for dust suppression when wet cutting is feasible. When the hazards from inhalation of dust, mists and fumes cannot be eliminated, the operator and any bystanders should always wear a respirator approved by NIOSH/MSHA for the materials being used.

WARNING

SILICOSIS WARNING

Grinding/cutting/drilling of masonry, concrete, metal and other materials with silica in their composition may give off dust or mists containing crystalline silica. Silica is a basic component of sand, quartz, brick clay, granite and numerous other minerals and rocks. Repeated and/or substantial inhalation of airborne crystalline silica can cause serious or fatal respiratory diseases, including silicosis. In addition, California and some other authorities have listed respirable crystalline silica as a substance known to cause cancer. When cutting such materials, always follow the respiratory precautions mentioned above.

SECTION 1 SAFETY

1.1 Safety Information

Do not operate or service the equipment before reading the entire manual. Safety precautions should be followed at all times when operating this equipment. Failure to read and understand the safety messages and operating instructions could result in injury to yourself and others.

SAFETY NOTES

The four safety notes shown below will inform you about potential hazards that could injure you or others. The safety notes specifically address the level of exposure to the operator and are preceded by one of four words: DANGER, WARNING, CAUTION or NOTICE.



Indicates a hazardous situation which, if not avoided, **will** result in death or serious injury.



Indicates a hazardous situation which, if not avoided, **could** result in death or serious injury.



Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.









Addresses practices not related to personal injury.



1.2 Safety Symbols

SECTION 1 SAFETY

Potential hazards associated with the operation of this equipment will be referenced with hazard symbols which may appear throughout this manual in conjunction with safety notes.

| Symbol | Safety Hazard |
|-------------------------------------------------------------------------------------|------------------------------|
|  | Lethal exhaust gas hazards |
|  | Explosive fuel hazards |
|  | Burn hazards |
|  | Rotating parts/crush hazards |
|  | Pressurized fluid hazards |
|  | Hydraulic fluid hazards |

SECTION 1 SAFETY

1.3 General Safety

- **NEVER** operate this equipment without proper protective clothing, shatterproof glasses, respiratory protection, hearing protection, steel-toed boots and other protective devices required by the job or city and state regulations.



- **ALWAYS** avoid wearing jewelry or loose fitting clothes that may snag on the controls or moving parts as this can cause serious injury.

- **NEVER** operate this equipment when not feeling well due to fatigue, illness or when under medication.



- **NEVER** operate this equipment under the influence of drugs or alcohol.



- **ALWAYS** clear the work area of any debris, tools, etc. that would constitute a hazard while the equipment is in operation.

- No one other than the operator is to be in the working area when the equipment is in operation.
- **DO NOT** use the equipment for any purpose other than its intended purposes or applications.
- This equipment should only be operated by trained and qualified personnel 18 years of age and older.
- Whenever necessary, replace nameplate, operation and safety decals when they become difficult to read.
- AEC does not assume responsibility for any accident due to equipment modifications. Unauthorized equipment modification will void all warranties.
- **NEVER** use accessories or attachments that are not recommended by AEC for this equipment. Damage to the equipment and/or injury to user may result.

- **ALWAYS** know the location of the nearest fire extinguisher.



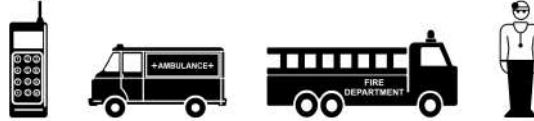
- **ALWAYS** know the location of the nearest first aid kit.



1.3 General Safety (cont'd)

SECTION 1 SAFETY

- **ALWAYS** know the location of the nearest phone or keep a phone on the job site. Also, know the phone numbers of the nearest ambulance, doctor and fire department. This information will be invaluable in the case of an emergency.



- Engine fuel exhaust gases contain poisonous carbon monoxide. This gas is colorless and odorless, and can cause death if inhaled.
- The engine of this equipment requires an adequate free flow of cooling air. never operate this equipment in any enclosed or narrow area where free flow of the air is restricted. If the air flow is restricted it will cause injury to people and property and serious damage to the equipment or engine.
- **NEVER** operate the equipment in an explosive atmosphere or near combustible materials. An explosion or fire could result causing severe bodily harm or even death.



- If applicable, never use your hand to find hydraulic leaks. Use a piece of wood or cardboard. Hydraulic fluid injected into the skin must be treated by a knowledgeable physician immediately or severe injury or death can occur.



- **ALWAYS** keep clear of rotating or moving parts while operating the buggy.



- **NEVER** disconnect any emergency or safety devices. These devices are intended for operator safety. Disconnection of these devices can cause severe injury, bodily harm or even death. Disconnection of any of these devices will void all warranties.



- **NEVER** allow passengers or riders on the buggy during operation.
- **NEVER** lubricate components or attempt service on a running machine.

SECTION 1 SAFETY

1.3 General Safety (cont'd)

NOTICE

- **ALWAYS** keep the machine in proper running condition.
- Fix damage to machine and replace any broken parts immediately.
- **ALWAYS** store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children and unauthorized personnel.

WARNING

- **DO NOT** place hands or fingers inside engine compartment when engine is running.
- **NEVER** operate the engine with heat shields or guards removed.
- Keep fingers, hands hair and clothing away from all moving parts to prevent injury.
- Use caution when operating at high speeds. It is necessary to decrease speed when turning, approaching objects or people, and when conditions call for conservative driving, i.e. inclines, declines, uneven surfaces, blind corners, or other obstacles that may obscure vision.
- When operating the dumping feature of the machine, the operator and other personnel need to stay clear of the bucket when it is dumping its contents and afterwards when the bucket is returning to the stored position.
- **DO NOT** remove the engine oil drain plug while the engine is hot. Hot oil will gush out of the oil tank and severely scald any persons in the general area of the screed.



CAUTION

- **NEVER** touch the hot exhaust manifold, muffler or cylinder. Allow these parts to cool before servicing equipment.



NOTICE

- **NEVER** run engine without an air filter or with a dirty air filter. Severe engine damage may occur. Service air filter frequently to prevent engine malfunction.
- **NEVER** tamper with the factory settings of the engine or engine governor. Damage to the engine or equipment can result if operating in speed ranges above the maximum allowable.



1.3 General Safety (cont'd)

SECTION 1 SAFETY

DANGER

- **DO NOT** start the engine near spilled fuel or combustible fluids. Fuel is extremely flammable and its vapors can cause an explosion if ignited.
- **ALWAYS** refuel in a well-ventilated area, away from sparks and open flames.
- **ALWAYS** use extreme caution when working with flammable liquids.
- **DO NOT** fill the fuel tank while the engine is running or hot.
- **DO NOT** overfill tank, since spilled fuel could ignite if it comes into contact with hot engine parts or sparks from the ignition system.
- Store fuel in appropriate containers, in well-ventilated areas and away from sparks and flames.
- **NEVER** use fuel as a cleaning agent.
- **DO NOT** smoke around or near the equipment. Fire or explosion could result from fuel vapors or if fuel is spilled on a hot engine.



DANGER

- **DO NOT** drop the battery. There is a possibility that the battery will explode.
- **DO NOT** expose the battery to open flames, sparks, cigarettes, etc. The battery contains combustible gases and liquids. If these gases and liquids come into contact with a flame or spark, an explosion could occur.



WARNING

- **ALWAYS** wear safety glasses when handling the battery to avoid eye irritation. The battery contains acids that can cause injury to the eyes and skin.
- Use well-insulated gloves when picking up the battery.
- **ALWAYS** keep the battery charged. If the battery is not charged, combustible gas will build up.
- **DO NOT** charge battery if frozen. Battery can explode. When frozen, warm the battery to at least 61°F (16°C).



SECTION 1 SAFETY

1.3 General Safety (cont'd)

- **ALWAYS** recharge the battery in a well-ventilated environment to avoid the risk of a dangerous concentration of combustible gases.

- If the battery liquid (dilute sulfuric acid) comes into contact with clothing or skin, rinse skin or clothing immediately with plenty of water.










- If the battery liquid (dilute sulfuric acid) comes into contact with eyes, rinse eyes immediately with plenty of water and contact the nearest doctor or hospital to seek medical attention.


CAUTION

- **ALWAYS** disconnect the negative battery terminal before performing service on the equipment.
- **ALWAYS** keep battery cables in good working condition. Repair or replace all worn cables.
- Only load or dump the bucket on flat, level ground or the buggy may tip over.
- **DO NOT** load the buggy beyond its rated capacity.
- The bucket should not be filled to its rated capacity when transporting material up or down slopes, on uneven surfaces, or on varying ground conditions to avoid spilling material out of the bucket.
- Side slope operation is not permitted.
- Walk around the buggy before starting it to see if any items are worn, damaged, leaking, etc. that may make the buggy dangerous to operate.
- Stop and inspect the equipment if you strike an object. If necessary, make repairs before restarting.
- **ALWAYS** check that all controls are functioning properly immediately after start-up!
- **DO NOT** operate machine unless all controls operate correctly.
- **ALWAYS** use caution when operating near the edges of pits, trenches or platforms. Check to be sure ground surface is stable enough to support the weight of the machine and operator and there is no danger of the machine sliding, falling or tipping.

1.3 General Safety (cont'd)

SECTION 1 SAFETY

|  WARNING | ADVERTENCIA |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
|  Electric shock hazard. Keep away from electric power lines and utility poles. | Peligro de electrocución. Manténgase alejado de los cables de energía eléctrica y postes de electricidad. |
|  Crush hazard. Beware of obstacles when reversing or turning. Always operate slowly and keep six feet or more clearance. | Peligro de aplastamiento. Durante la marcha atrás girando tenga cuidado con los obstáculos siempre. Operar despacio y mantenerse seis pies o más espacio. |
|  Moving belts can entangle hands and arms. Keep hands away to avoid injury. | Cintas transportadoras pueden enredar manos y los brazos. Mantener las manos alejadas para evitar lesiones. |
|  Operator must always keep one hand on the handle. | El operador debe mantener siempre una mano en el mango. |
|  Hot Surface. Do NOT touch. | De superficie caliente. NO TOCAR. |
|  Read and FULLY understand the operator's manual before use or maintenance. | COMPLETAMENTE comprender el manual del operador antes de su uso o mantenimiento. |

|  WARNING | ADVERTENCIA |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  Upset hazard. | Voltrear peligro. |
|  <ul style="list-style-type: none"> Accelerate or decelerate slowly. Sudden starts, stops, or turns can cause tip-over. Never operate on slope in excess of 20 degrees. Avoid running over obstacles. Hold onto guide rail at all times. Keep feet on foot platform (step) at all times. | <ul style="list-style-type: none"> Acelerar o desacelerar lentamente. Arranques bruscos, paradas o giros puede causar un vuelco. Nunca utilice en pendientes de más de 20 grados. Evite conducir sobre obstáculos. Sujete carril guía siempre Mantenga los pies sobre la plataforma para los pies siempre. |
|  Power Sources. Hydraulic and electric power sources are present. Lockout ALL energy sources before servicing. | Fuentes de alimentación. hidráulica y energía eléctrica fuentes son presente. interrupción de energía usando candado TODAS las fuentes de energía antes de darle mantenimiento. |
| <p>UNDERCARRIAGE MAINTENANCE</p> <p>Maintaining the proper track tension is critical for minimizing downtime and repair costs. Inspect the tracks and undercarriage components daily. Overly worn or damaged components can affect the track performance and shorten the useful life of the tracks. Idlers and rollers are permanently sealed and lubricated but they, along with tracks and sprockets should be replaced periodically depending on wear. The front and rear rollers will wear more quickly than the others. Rotating the positions of the rollers periodically will lengthen the useful life. The rollers need to be replaced when the flanges are worn thin, have broken or sharp edges, or visible dents. Sprockets can be rotated from side to side when worn to put the opposite side of the teeth in contact with the bars in the tracks.</p> <ul style="list-style-type: none"> Keep the undercarriage clean of mud and debris. Also any fluids like oil or grease should be cleaned off immediately. Minimize high speed operation. Alternate turning direction. Avoid contacting the track sidewalls with hard surfaces while operating. Avoid working on crowns, depressions, or side slopes. Limit the use of the machine on rough rocky surfaces or gravel. Limit traveling on concrete or asphalt surfaces when loaded. When traveling over these surfaces avoid making sharp turns. The extra stress from turning on these types of surfaces can cause premature stretching of the tracks and de-tracking. When the machine is not in use, store out of rain and direct sunlight. | |

SECTION 1 SAFETY


1.3 General Safety (cont'd)

MAX. LOADING CAPACITY 2500 LBS (1134 KG)

| | |
|-----------------------|---------------------------------------------------------|
| MACHINE WEIGHT: | 1500 LBS (682 KG) |
| MAX LOADING CAPACITY: | 2500 LBS (1134 KG) |
| RATED OUTPUT: | 27 HP (20 KW) |
| DRIVE BELTS: | BX41 |
| HYDRAULIC LIFT BELT: | A45 |
| SERVICE SCHEDULE | |
| ENGINE OIL: | 10W-30 1.8 QT (1.7 L) |
| | CHANGE EVERY 50 HRS |
| HYDRAULIC OIL: | 20W-50 4 GAL (15 L) |
| | INITIAL CHANGE AT 100 HRS, EVERY 400 HRS THEREAFTER. |
| GREASE POINTS: | EVERY 50 HRS |



| | | |
|-------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <p>WORK PRIMERA</p> <p>↑</p> <p>GEAR PALANCA DE CAMBIOS</p> <p>↓</p> <p>TRANSPORT TRANSPORTE</p> | <p>⚠ WARNING • ADVERTENCIA</p> <p>USE TRANSPORT SPEED ON SMOOTH, LEVEL SURFACE - UNLOADED ONLY</p> <p>USO DE VELOCIDAD DE TRANSPORTE EN UNIFORME, SUPERFICIE DE NIVEL - SIN CARGA SOLAMENTE</p> | <p>UNLOCK ABRIR CERRADURA</p> <p>↑</p> <p>BRAKE FRENO</p> <p>↓</p> <p>LOCK CERRADURA</p> |
| | <p>⚠ CAUTION • PRECAUCIÓN</p> <p>MUST BE LOCKED TO START</p> <p>DEBE ESTAR ASEGURADO PARA ARRANCAR EL MOTOR</p> | |
| | <p> 98^{LWA} dB</p> | |



DANGER

FLAMMABLE FUEL

BEFORE ADDING FUEL:

- SHUT ENGINE OFF.
- LET ENGINE COOL OFF A MINIMUM OF 5 MINUTES.
- EXTINGUISH SMOKING MATERIALS.
- USE FUNNEL.

WHILE ADDING FUEL:

- DO NOT OVERFILL.

A HOT ENGINE CAN IGNITE SPILLED FUEL.


AFTER ADDING FUEL:

- REPLACE FUEL CAP.

Safety Instructions


A. Do not operate this machine before reading all labels and the operating instructions located in the plastic tube in the engine compartment.

B. Inspect this equipment daily and make any necessary repairs or adjustments before operating. (See manual)



DANGER

C. **BEFORE ADDING FUEL: SHUT ENGINE OFF AND ALLOW TO COOL FOR 5 MINUTES, EXTINGUISH ALL SMOKING MATERIALS, USE FUNNEL TO FILL BUT DO NOT OVERFILL, REPLACE FUEL CAP. A HOT ENGINE MAY IGNITE SPILLED FUEL - EXERCISE EXTREME CAUTION WHEN FUELING.**



DANGER

D. **DO NOT START OR OPERATE THIS EQUIPMENT IN UNVENTILATED AREAS. THE ENGINE ON THIS MACHINE PRODUCES CARBON MONOXIDE AND HYDROCARBON EMISSIONS THROUGH ITS EXHAUST. INHALATION OF THIS GAS CAN CAUSE SERIOUS INJURY OR DEATH.**

E. This equipment must only be operated by trained personnel who fully understand its safe operation. Each operator must be able to identify any unsafe work site conditions and report those conditions to his supervisor. Under all conditions, the operator is solely responsible for safe operation.

1. Identify and avoid any grade or slope conditions that may cause this equipment to tip.
2. Identify and adhere to all safe load requirements. See SAFETY AND OPERATION REQUIREMENTS below.
3. Avoid excessive speed and reckless operation.
4. Do not dump while moving. Dump only when buggy is on a level surface and not moving.
5. Do not leave operator's station unless engine is off and parking brake is locked.
6. Do not allow riders. The AT16 is designed for transportation of operator only.

SAFETY AND OPERATION REQUIREMENTS

| | |
|------------------------------|----------|
| | AT16 |
| Max. Net Payload | 2500 lb. |
| Max. Load Height from Ground | 48" |
| Max. Vehicle GVW | 3975 lb. |

SECTION 1 SAFETY

1.3 General Safety (cont'd)

OPERATING INSTRUCTIONS

1. To start engine, read the instructions in the Kohler engine manual located in the plastic tube on the front panel of the machine. When using this machine in cold weather, always allow the engine to run at idle speed for at least 5 minutes to warm the engine and hydraulic oil to operating temperatures.
2. To drive and stop equipment:
 - A) With parking brake engaged and directional control in center position, increase the engine speed to full throttle using the throttle lever on the left side of the control panel.
 - B) Release the parking brake.
 - C) Select the operating range by placing the control handle into either the WORK or TRANSPORT POSITION. Use TRANSPORT position only when the machine is unloaded and operating on a smooth level surface.
 - D) Select the desired direction of travel with the DIRECTIONAL CONTROL HANDLE located in the center of the control panel. Push the handle forward to move forward or pull it toward you to move backward. The speed of the machine will be determined by how far you move the handle. Steer the machine by twisting the handle in the desired direction.
 - E) To slow or stop the machine, move the DIRECTIONAL CONTROL HANDLE toward the center position. When the machine is stopped for any reason, engage the parking brake.
3. To operate the bucket:
 - A) To dump the bucket depress the front side of the dump control rocker switch and hold until the bucket has reached the desired angle.
 - B) To retract the bucket, depress the back side of the dump control rocker switch and hold until the bucket has returned to the down position.
4. To engage the parking brake, pull the handle back toward the operator until it locks. To disengage the brake, push the handle forward.



DANGER

DO NOT TURN THE BUGGY WHEN TRAVELING ON A GRADE. TRAVEL IN A STRAIGHT LINE EITHER UP OR DOWN THE GRADE. WHEN THE BUCKET IS EMPTY, TRAVEL UP GRADES BACKWARDS AND DOWN GRADES FORWARD, KEEPING THE BUCKET ON THE DOWNHILL SIDE. WHEN THE BUCKET IS LOADED, TRAVEL UP GRADES FORWARD AND DOWN GRADES BACKWARDS, KEEPING THE BUCKET ON THE UPHILL SIDE. NEVER ATTEMPT TO CLIMB GRADES GREATER THAN 20°.

CAUTION

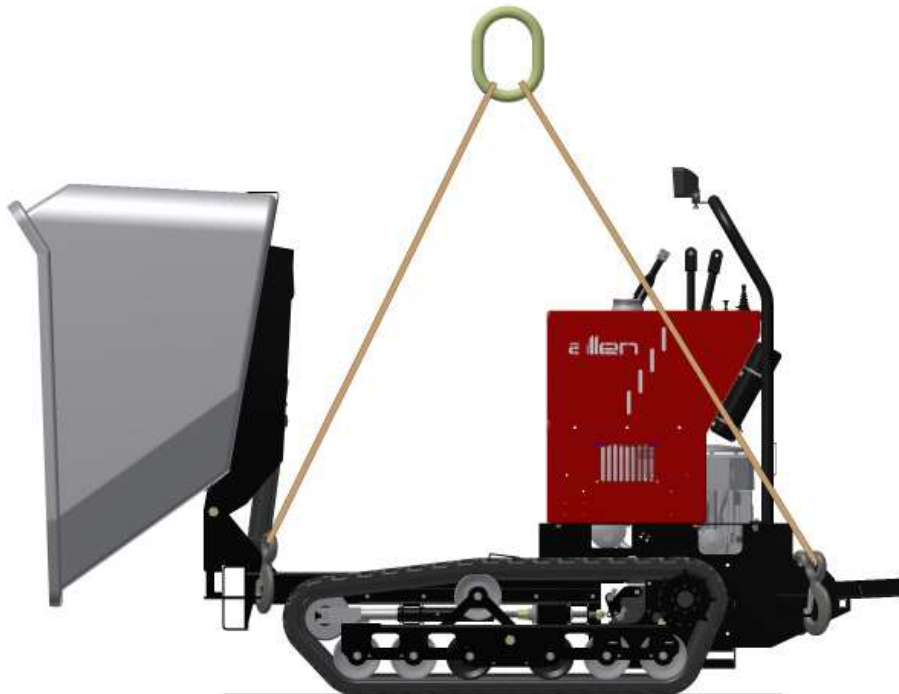
- When lifting the buggy, all personnel must be clear of the machine.
- **DO NOT** stand near or under the machine while it is being lifted.
- **DO NOT** lift the buggy with the bucket loaded.

Lifting instructions using a hoist:

- Make sure the bucket is empty, raise it to the dump position, and turn off the engine.
- Place slings, chains or hooks through each lifting eye on the machine. Use a sling or chains with a minimum length of 2 meters (6 feet) on each leg, connected to a central lifting device. Ensure that all lifting devices have sufficient weight-bearing capacity.
- Lift the buggy a few inches off of the ground and check to see how it is balanced. If the buggy is not fairly level, lower the buggy onto the ground, partially lower or raise the bucket, and turn off the engine. Repeat this procedure until the buggy is levelled out.

Note: Position of the bucket is dependant on several factors, including position of the operator's platform, amount of fuel in the gas tank, etc.

- **ALWAYS** shutdown engine before transporting.



SECTION 1 SAFETY

1.4 Transportation Safety (cont'd)

- Make sure the hitch and coupling of the towing vehicle are rated equal to, or greater than the trailer "gross vehicle weight rating."
- **ALWAYS** inspect the hitch and coupling for wear. Never tow a trailer with defective hitches, couplings, chains, etc.
- Check the tire air pressure on both towing vehicle and trailer. Trailer tires should be inflated to 50 psi cold. Also check the tire tread wear on both vehicles.
- **ALWAYS** make sure the trailer is equipped with a safety chain.
- **ALWAYS** properly attach trailer's safety chains to towing vehicle.
- **ALWAYS** make sure the vehicle and trailer directional, backup, brake and trailer lights are connected and working properly.
- DOT Requirements include the following:
 - Connect and test electric brake operation.
 - Secure portable power cables in cable tray with tie wraps.
- The maximum speed for highway towing is 55 MPH unless posted otherwise. Recommended off-road towing is not to exceed 15 MPH or less depending on type of terrain.
- Avoid sudden stops and starts. This can cause skidding, or jack-knifing. Smooth, gradual starts and stops will improve towing.
- Avoid sharp turns to prevent rolling.
- Trailer should be adjusted to a level position at all times when towing.
- Raise and lock trailer wheel stand in up position when towing.
- Place chock blocks underneath wheel to prevent rolling while parked.
- Place support blocks underneath the trailer's bumper to prevent tipping while parked.
- Use the trailer's swivel jack to adjust the trailer height to a level position while parked.

Section 2
OPERATIONS

SECTION 2 OPERATIONS

Pre-Operating Instructions

Before operation each day ensure the following:

- All guards, side screens and panels are in place.
- All safety and information signs are in place and legible.
- Engine and hydraulic oil levels are correct.
- Check battery level
- Check for hydraulic leaks.
- Check all operating controls for proper operation and adjustment.
- Check speed control operation before and after starting engine for proper operation.
- Transmission oil level. Add oil as required.
- Rubber track is in good condition and working properly.
- Hand operated brake for proper operation.
- The steering, left and right.

Note: If there is any indication that faulty equipment exists, shutdown safely, inform the proper authority and **DO NOT** operate the power buggy until the problem has been fixed.

- Remove loose objects that could interfere with operation.

Learn as much as possible about the work area before operation. Walk around the worksite and inspect the terrain that you will be traveling on.

Make a note of surfaces to be avoided, including:

- Holes, Drop-offs, Banks, Ditches, Trenches, Slopes, or Undercut High Banks.
- Obstacles.
- Soft mud and standing water.
- Oil spills and slippery surfaces.

Note: If any of the above conditions exist in the work area, correct the condition before operating. If the condition cannot be corrected, avoid operation in the problem area. When operating on docks, ramps, or floors, check for weak spots. Clear away trash and debris. When required, check the power buggy's maximum fully loaded ground pressure weight if operating on a hollow floor system.

Watch for conditions that could cause:

- Loss of control
- A collision
- Tipover

Check overhead clearances. Know the size of doorways and canopies. Know exactly how much clearance you have under power lines and telephone lines. All local, state/provincial, and federal regulations must be met before approaching power lines, overhead or underground cables or other power sources with any part of your power buggy. **DO NOT** operate the machine near energized power lines. **ALWAYS** contact the electrical power company when operating near power lines. The lines should be moved, insulated, disconnected, or de-energized and grounded before operating in the area. Keep all parts of the machine at least 50 feet away from power lines.

Before you operate, know how and where you will travel, turn, and pickup loads.

Choose a smooth level route to prevent possible tipover or loss of load. If possible, avoid crossing the following: Ruts, ditches, curbs, and exposed railroad tracks.

Note: When these conditions cannot be avoided travel very slowly and with extreme caution. Know where there are any blind corner conditions on the worksite. Before turning a blind corner, stop, and then proceed slowly.

ALWAYS maintain safe distances between the power buggy and other equipment that may be on the worksite.

Know the weights of all loads you may be expected to transport before attempting to load them. Avoid loads of loose material if possible. To avoid injury to personnel or damage to nearby equipment and fixtures watch front and rear machine clearance when driving straight and when turning.

Choose a level, parking area out of traffic to park the power buggy at the end of the day. If the area is on a slope or incline, position the power buggy at right angles to the slope, set the hand brake, lower the bucket onto the frame assembly.

For safe operation of the power buggy you must be a qualified and authorized operator. To be qualified, you must understand the written instructions supplied in the operator/maintenance manual, have training (including actual operation of this machine), and know the safety rules and regulations for the jobsite.

An operator must not use drugs or alcohol which can affect his alertness and coordination. An operator on prescription or over-the-counter drugs needs medical approval to safely operate these machines.

SECTION 2 OPERATIONS

Starting Instructions

Make sure that the parking brake is fully applied and in the locked position.

Make sure fuel valve is open on fuel tank.

Note: If engine is cold, move choke lever to close position. If engine is hot, set choke to open position.

Move the throttle lever slightly towards the bucket.

Pull the E-stop button out.

Turn the key switch to “ON” position.

Hold switch in “START” position until engine starts. Do not hold switch in “START” position for more than 5 seconds.

Note: If the engine does not start, wait 10 seconds, and turn switch to “START” again.

When engine starts, allow switch to return to “ON” position.

As the engine warms up, gradually move the choke lever to the OPEN position.

Position the throttle lever to the maximum engine speed of 3600 rpm, release the parking brake and move into operation.

Read the instructions in the Kohler engine manual located in the plastic tube on the front panel of the machine. When using this machine in cold weather, always allow the engine to run at idle speed for at least 5 minutes to warm the engine and hydraulic oil to operating temperatures.

To drive and stop equipment:

A) With parking brake engaged and directional control in center position, increase the engine speed to full throttle using the throttle lever on the left side of the control panel.

B) Release the parking brake.

C) Select the operating range by placing the control handle into either the **WORK** or **TRANSPORT** position. Use **TRANSPORT** position only when the machine is unloaded and operating on a smooth level surface.

D) Select the desired direction of travel with the **DIRECTIONAL CONTROL HANDLE** located in the center of the control panel. Push the handle forward to move forward or pull it toward you to move backward. The speed of the machine will be determined by how far you move the handle. Steer the machine by twisting the handle in the desired direction.

E) To slow or stop the machine, move the **DIRECTIONAL CONTROL HANDLE** toward the center position. When the machine is stopped for any reason, engage the parking brake.

To operate the bucket:

A) To dump the bucket, depress the front side of the dump control rocker switch and hold until the bucket has reached the desired angle.

B) To retract the bucket, depress the back side of the dump control rocker switch and hold until the bucket has returned to the down position.

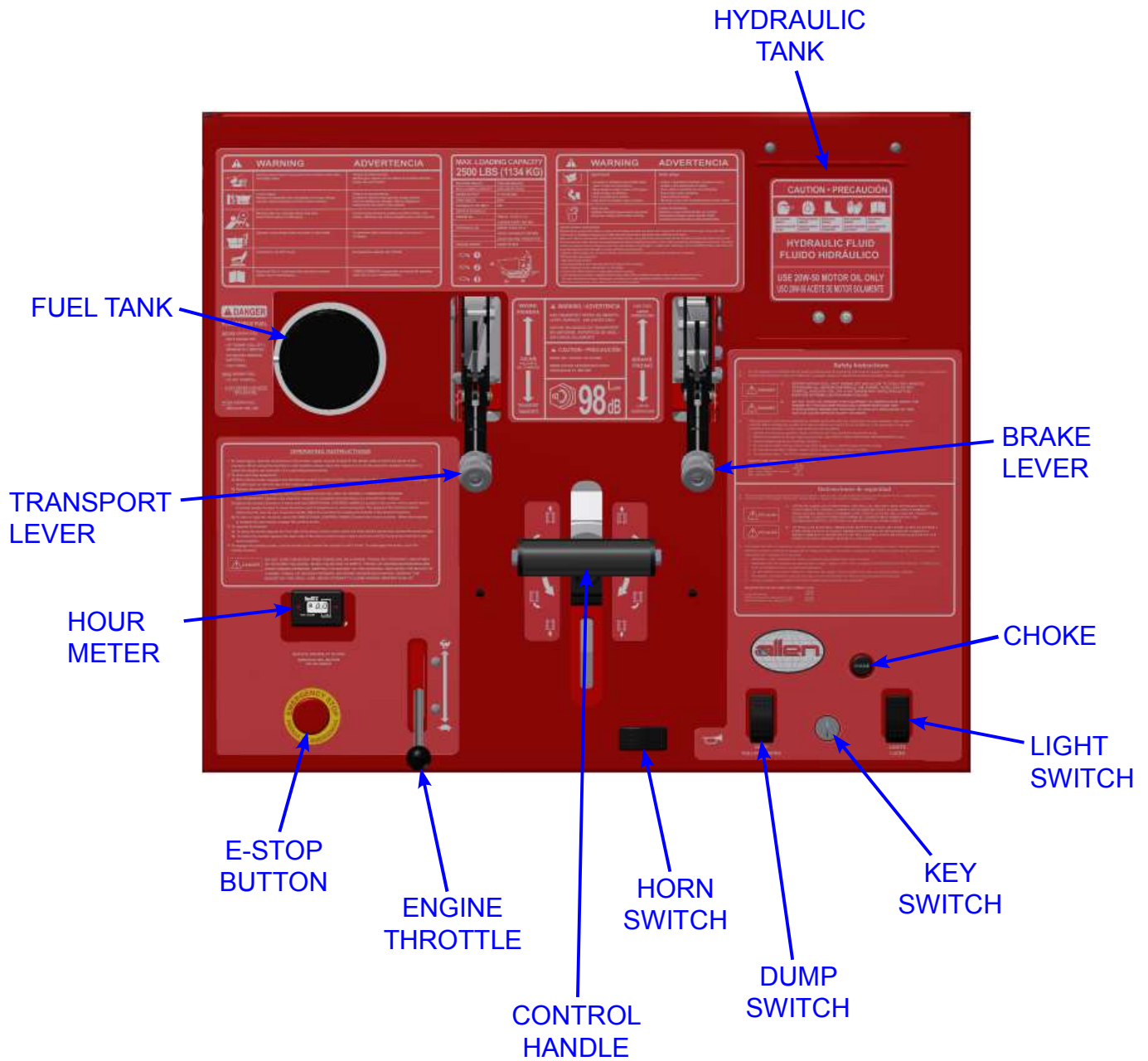
To engage the parking brake, pull the handle back toward the operator until it locks. To disengage the brake, push the handle forward.

DO NOT TURN THE BUGGY WHEN TRAVELING ON A GRADE. TRAVEL IN A STRAIGHT LINE EITHER UP OR DOWN THE GRADE. WHEN THE BUCKET IS EMPTY, TRAVEL UP GRADES BACKWARDS AND DOWN GRADES FORWARD KEEPING THE BUCKET ON THE DOWNHILL SIDE.

WHEN THE BUCKET IS LOADED, TRAVEL UP GRADES FORWARD AND DOWN GRADES BACKWARDS KEEPING THE BUCKET ON THE UPHILL SIDE. NEVER ATTEMPT TO CLIMB GRADES GREATER THAN 20°.

SECTION 2 OPERATIONS

Operating Instructions - cont'd



Keep personnel clear of the buggy during travel.

Do not allow anyone to stand/pass in front of the buggy during travel.

Do not approach personnel standing in front of fixed objects. Do not allow others to ride on the buggy.

Test the controls for proper operation. Be certain you can control both speed and direction before moving.

Keep both hands on the steering handle during travel.

Avoid sudden starts, stops and direction changes.

Ensure that all surfaces are capable of supporting the buggy and load.

Look for and avoid oil spills, wet or slippery surfaces that may cause loss of control.

Maintain clearances from obstacles.

Make sure aisle, ramps, doorways and passages are clear.

Operate the controls smoothly. Don't jerk the steering control.

Avoid sudden stops, starts, turns, or changes in direction.

NEVER cowboy or play games with the machine.

NEVER attempt to work the controls except from operator's position at the rear of the machine.

NEVER leave the power buggy unattended with a bucket or platform in the raised position.

Important: If the engine has been under heavy load, operate the engine at 1/2 to 3/4 throttle for three to five extra minutes before stopping the engine. Cool down applied when needed will extend engine life.

Slow down for turns, ramps, dips, uneven, or slippery surfaces and in congested areas.

Avoid excessively steep slopes or unstable surfaces. If you must drive on a slope, proceed with extreme caution. **DO NOT**, under any circumstances, drive across excessively steep slopes.

SECTION 2 OPERATIONS

Operating Instructions - cont'd

If possible, plan to load, unload, and turn on flat, level ground.

Be sure there is enough clearance for traveling. Watch the front and side clearances when turning.

Handle only stable and properly arranged loads. When handling off-center loads which cannot be centered, operate with extra caution.

Handle only loads within the capacity of the buggy.

Buggy should be operated at full speed only when traveling on a flat and level surface. When traveling on surfaces that are not flat and level, DO NOT exceed a creep speed of 10 feet in 5 seconds (120 feet per minute or 1.36 miles per hour), because the buggy does not have a speedometer, always apply good judgment when determining a safe and proper creep speed.

Do not ride on buggy if the buggy is to travel on uneven/rough terrain. Instead, raise and secure the platform and walk behind the buggy. Check to make certain that the mounting bolts are sufficiently tight to retain it in that position. Do not exceed creep speed.

Do not dump buggy when facing downhill on slope.

Do not stand in front of or alongside the buggy where you intend to unload.

Do not dump buggy towards other personnel.

Do not touch, lean on or reach through the dump mechanisms.

NEVER operate machine on side slopes. The machine may roll over, even on stable ground.



OUR MISSION STATEMENT

Our Mission is to provide superior quality products (manufactured in a safe and efficient environment by highly trained and dedicated personnel), on-time deliveries, with reactive and knowledgeable customer service.

OUR QUALITY POLICY

The Allen Engineering Team is fully committed to exceeding customer expectations for the quality of the products and services provided through the continuous improvement process of reducing waste, defects, and variability in everything we do.

OUR VISION

Our Vision is to be a world-class manufacturer of concrete placing and finishing equipment.

Section 3
SERVICE

SECTION 3 SERVICE

Maintenance Instructions

Maintenance described in this section represents minimum requirements for continuous satisfactory operation of the machine.

Because improperly maintained machines are hazardous, it is extremely important that only qualified mechanics perform maintenance work.

It is imperative that only genuine AEC parts are used if replacement is needed as substituted parts in critical areas may place the operator at risk.

It is recommended that a regular maintenance schedule be followed for mechanical adjustments as well as for lubrication.

Use a preventative maintenance program to catch and correct many serious problems before they occur. The preventative maintenance schedule contained herein gives a daily, weekly, monthly, semi-annually, annually, and break-in 100 hours minimum requirement to keep your buggy running for years. The lubrication chart contained herein is one part of buggy preventative maintenance.

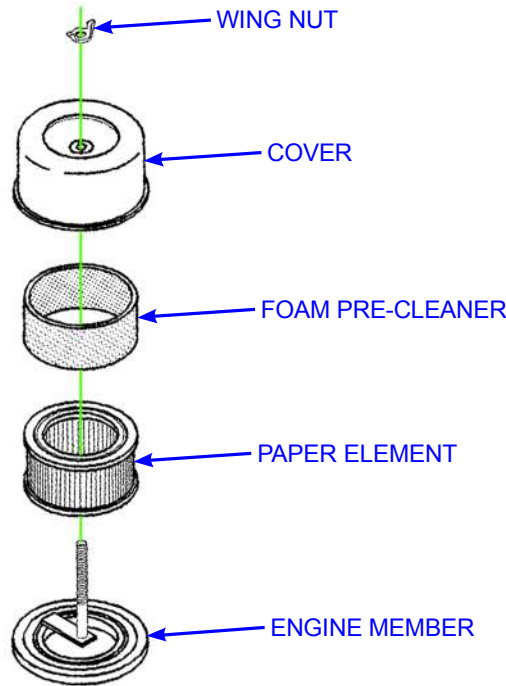
Because regular maintenance cannot be controlled by the manufacturer or by the distributor, it must ultimately be the responsibility of the owner.

Your AEC dealer stands ready to assist in the event of operational difficulties. However, most adjustments and/or repair can be readily performed by the user.

The instructions provided in this section will facilitate the maintenance of the AEC equipment to operate at peak efficiency.

Pre-Cleaner Maintenance Procedure

This engine is equipped with a large capacity, dual element air filter—an oiled, foam pre-cleaner surrounds a high density paper element.



Every **25 hours** of operating time (more often under extremely dusty or dirty conditions) the oiled, foam pre-cleaner needs washing and oiling. Remove, wash, dry and oil the pre-cleaner and replace as follows:

- Raise the bucket.
- Un-bolt and remove the rear engine housing cover and access the air filter from the rear. Remove wing nut, air filter cover and paper element with foam pre-cleaner.
- Remove foam pre-cleaner from the paper element.
- Carefully check both elements for holes or tears and replace if damaged.
- Wash the foam pre-cleaner element in a solution of household detergent and warm water. Then, rinse thoroughly removing all soap and squeeze out excess water; **DO NOT** wring. Allow the element to dry thoroughly.

Note: The engine will smoke during initial start-up if too much oil is left in the foam.

- Soak the foam pre-cleaner element in a clean engine oil, and squeeze out the excess oil. (Use paper towel or similar absorbent tissue to blot/squeeze out excess oil.) **DO NOT** wring.
- Install pre-cleaner over paper air filter element.
- Install the air filter, air filter cover and wing nut. The wing nut must be finger tightened 1/2 to 1 full turn after the nut contacts cover. **DO NOT** overtighten.
- Install the engine housing cover.
- Lower the bucket.

SECTION 3 SERVICE

Air Filter Maintenance - cont'd

Paper Element Maintenance Procedure

Every **100 operating hours** (more often under extremely dusty or dirty conditions) clean or replace the paper element as follows:

- Raise the bucket.
- Unlatch and remove the engine housing cover and access the air filter from the front. Remove wing nut, air filter cover and paper element with foam pre-cleaner.
- Remove foam pre-cleaner from paper element.
- Clean the foam pre-cleaner following the Pre-Cleaner Maintenance Procedure.
- Tap the element lightly several times on a hard surface to remove excess dirt, or blow compressed air through the filter from the inside out. **NEVER** try to brush the dirt off; brushing will force dirt into the fibers. Replace the paper element if it is excessively dirty with **Part# 45 083 02**.
- When dirty or damaged, replace with the correct part number filter element. Carefully handle new element—**DO NOT** use if surfaces are damaged.
- With air filter disassembled, check the filter base plate to make sure it is secure, not bent or damaged. Check the cover and paper element seals. Damaged components could allow unfiltered air into engine causing premature wear and failure.
- Install the oiled, foam pre-cleaner around the paper filter element.
- Install the air filter, air filter cover and wing nut. The wing nut must be finger tightened 1/2 to 1 full turn after the nut contacts cover. **DO NOT** overtighten.
- Install the engine housing cover.
- Lower the bucket.



Engine Oil Level Check

- ALWAYS check the engine oil dipstick before using the buggy. At a minimum check engine oil once per day. Follow the Maintenance and Lubrication Chart contained herein.
- ALWAYS use a good quality engine oil.
- The engine oil fill is the same as the oil dipstick hole and is located on the engine block opposite the crankcase drain hose and plug.
- Use oil grades appropriate to the surrounding temperature range as shown below. See **GRADE OF OIL CHART** under **CHANGING ENGINE OIL** section below.
- Remove engine oil dipstick to access oil fill hole. To fill engine with oil use a long funnel to avoid spilling or use an oil can filled with the proper weight small engine oil and squirt oil directly into fill hole. Check oil level with dipstick. Fill the crank case to the full mark on the dipstick. **DO NOT** overfill.
- Replace dipstick.

Change Engine Oil



Important: Engine oil is best drained when the engine is warm. Warm oil flows freely and carries away more impurities than cold oil.

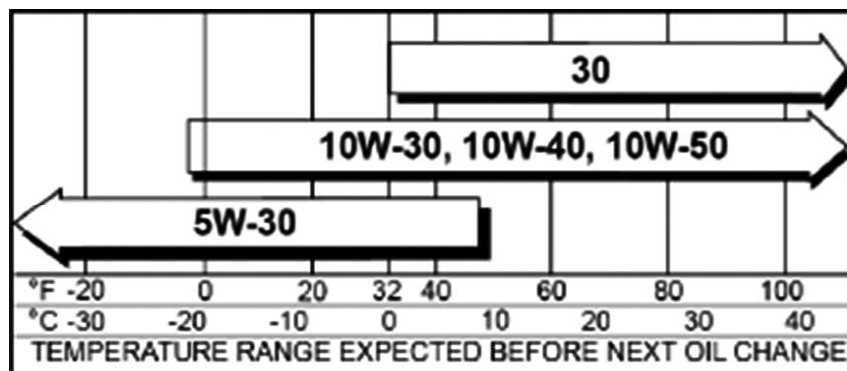
Note: Change engine oil every **25 hours** of operation. On a new engine, change oil after the first **5 hours** of operation.

Note: Buggy must be on a level surface when changing and checking oil.

- Apply and lock the parking brake and block each side of the track.

Note: Viscosities shown in the chart below may be used when the average temperature in your area is within the indicated range.

- SAE 30 is recommended for general, all-temperature use (above 32°F (0°C)).



SECTION 3 SERVICE

Maintenance Schedule

| Maintenance Schedule | | | | | |
|---------------------------------------------|-------|--------|---------|----------|-----------|
| Item | Daily | Weekly | Monthly | Annually | 100 Hours |
| Check external hardware | ✓ | | | | |
| Check hydraulic oil level | ✓ | | | | |
| Check hydraulic fittings and hoses | ✓ | | | | |
| Apply grease to track rollers | ✓ | | | | |
| Apply grease to bucket hinge | | | ✓ | | |
| Check all operational controls | ✓ | | | | |
| Tighten all bolts and nuts. | | | ✓ | | |
| Grease steering assembly cartridge bearing | | | | | |
| Tighten any loose bolts, nuts, etc | | | | | ✓ |
| Inspect visually for loose or missing parts | ✓ | | | | |
| Wash wet concrete of machine | ✓ | | | | |
| Clean fuel sediment bowl | | ✓ | | | |
| Inspect battery (fill with water if needed) | | ✓ | | | |
| Change transmission oil | | | | ✓ | |
| Inspect drive belts | | | ✓ | | |
| Inspect all rollers and tracks | | | | ✓ | |
| Check all adjustments | | | | | ✓ |
| Change the engine oil | | | | ✓ | |
| Check paper air cleaner element | | ✓ | | | |
| Thoroughly clean machine | | | | ✓ | |
| Change the hydraulic oil | | | | | ✓ |
| | | | | | |

Filter Replacement

SECTION 3 SERVICE



AIR CLEANER PAPER ELEMENT
PART #: 45 083 02



ENGINE OIL FILTER
PART #: 52 050 02



ENGINE FUEL FILTER
PART #: 24 050 13



HYDRAULIC OIL FILTER
PART #: 046730

SECTION 3 SERVICE

Filter Replacement - cont'd



FILTER MAINTENANCE KIT

Includes air filter, pre-cleaner, oil filter, fuel filter, 10W-30 oil (2-quarts) and 2-spark plugs

Air filter part number 45 083 01

Pre-cleaner part number 45 083 01

Oil filter part number 52 050 02

Fuel filter part number 24 050 13

Spark plug part number 12 132 02

Track Tension Adjustment

SECTION 3 SERVICE

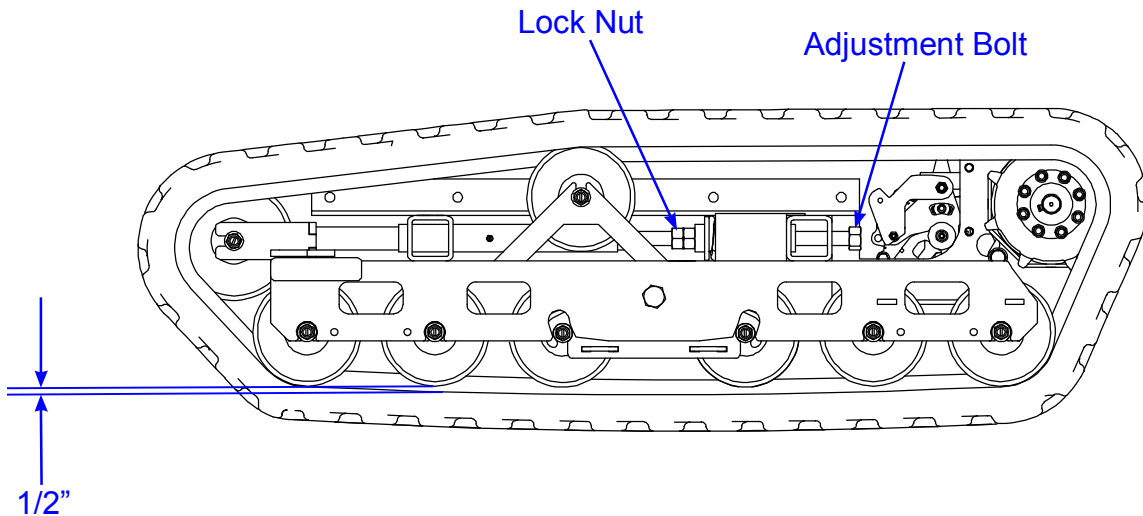
NOTE

The track stretches during its life cycle and needs to be adjusted regularly.

Hoist one side of the machine so that the buggy is parallel to the ground.

Inspect the clearance between the track and the second wheel to be approximately 1/2" [12.7mm]. Adjust the tracks by loosening the lock nuts and tightening the adjustment bolt to the desired dimension. After the desired adjustment has been made, retighten the lock nut.

Lower the machine.



SECTION 3 SERVICE

Troubleshooting

| Area | Malfunction | Possible Cause | Corrective Measure | Ref. |
|-----------------------------------|--------------------------------------------------------|-------------------------------------------------|----------------------------------------------------------------------|------|
| Engine | Engine does not start, or is difficult to start | Battery is discharged | - Add battery fluid - Charge the battery - Replace the battery | |
| | | Battery cable is disconnected | - Connect battery cable | |
| | | Blown fuse | - Replace fuse | |
| | | Bad connection or breakage in the wiring | - Contact your AEC dealer | |
| | | Out of fuel | - Fill fuel | |
| | | Air is in fuel | - Contact your AEC dealer | |
| | | Engine fouled | - Wait a while and try starting again | |
| | | Insufficient or wrong oil | - Fill or change oil | |
| | | Dirty or damaged spark plug | - Clean or replace spark plug | |
| | | Contamination in fuel system | - Contact your AEC dealer | |
| | | Parking brake is not engaged | - Engage brake lever into the "lock" position | |
| | | Other (other than above) | - Contact your AEC dealer | |
| | Engine stalls | Out of fuel | - Fill fuel | |
| | | Cold engine | - Warm up the engine | |
| | | Other (other than above) | - Contact your AEC dealer | |
| | Engine stops abruptly | Out of fuel | - Fill fuel | |
| | | Piston seizure due to insufficient or bad oil | - Contact your AEC dealer | |
| | | Other (other than above) | - Contact your AEC dealer | |
| | Engine does not stop | Electrical malfunction | - Contact your AEC dealer | |
| | | Other (other than above) | - Contact your AEC dealer | |
| | Idling is not stable | Insufficient intake air (clogged air cleaner) | - Clean or replace the air cleaner | |
| | | Other (other than above) | - Contact your AEC dealer | |
| | Poor power or acceleration | Bad fuel | - Change fuel | |
| | | Wrong oil (improper viscosity) | - Change to suitable oil | |
| | | Accelerator (throttle) is not properly adjusted | - Contact your AEC dealer | |
| | | Insufficient intake air (clogged air cleaner) | - Clean or replace the air cleaner | |
| | | Excessive load | - Reduce load | |
| | | Loose drive belt | - Adjust | |
| | Irregular noise or vibration from or around the engine | | - Contact your AEC dealer | |
| | | | - Contact your AEC dealer | |
| | Excessive oil consumption | | - Contact your AEC dealer | |
| | | | - Contact your AEC dealer | |
| | Engine overheats | Insufficient amount of engine oil | - Fill oil | |
| Cooling fan is clogged or blocked | | - Clean | | |
| Other (other than above) | | - Contact your AEC dealer | | |
| Excessive fuel consumption | Clogged air cleaner | - Clean or replace air cleaner | | |
| | Other (other than above) | - Contact your AEC dealer | | |

Troubleshooting - cont'd

SECTION 3 SERVICE

| Area | Malfunction | Possible Cause | Corrective Measure | Ref. |
|------------------|------------------------------------------------------|----------------------------------------------|------------------------------------|------|
| Engine | Black smoke comes out of exhaust | Bad fuel | - Change fuel | |
| | | Clogged air cleaner | - Clean or replace the air cleaner | |
| | | Choke is not fully open | - Open the choke fully | |
| | | Other (other than above) | - Contact your AEC dealer | |
| | White or blue smoke comes out of exhaust | Engine oil level is too high | - Adjust the oil level | |
| | | Other (other than above) | - Contact your AEC dealer | |
| Drive Train | Machine does not move | Parking brake is applied | - Release the parking brake | |
| | | Excessive load | - Reduce load | |
| | | Other (other than above) | - Contact your AEC dealer | |
| | Irregular noise or heat is observed around the track | | - Contact your AEC dealer | |
| Brake | Brake does not work well | Not properly adjusted | - Adjust | |
| | | Brake is wet with water | - Apply brake a few times to dry | |
| | | Other (other than above) | - Contact your AEC dealer | |
| Track | Track does not move smoothly | Not properly adjusted | - Adjust | |
| | | Other (other than above) | - Contact your AEC dealer | |
| Safety Devices | Lamp does not light | Blown bulb | - Replace | |
| | | Blown fuse | - Replace | |
| | | Other (other than above) | - Contact your AEC dealer | |
| Hydraulic System | Dump does not work | Insufficient or deteriorated hydraulic fluid | - Add or change fluid | |
| | | Loose hydraulics belt | - Adjust | |
| | | Other (other than above) | - Contact your AEC dealer | |

SECTION 3 SERVICE

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