PBM Supply & Manufacturing, Inc.

40 years

2009 HAV 300 Owner's Manual

Contact Us...

Chico ~ 1-800-688-1334
Northern California

Fowler ~ 1-877-688-1334
Central California

Murrieta ~ 1-866-922-7627
Southern California

Table of Contents

Dealer Service & Equipment Warranty

Identify your equipment to the dealer:

All PBM Supply & Mfg., Inc. equipment is designated by a serial number. On the HAV 300 Series, the serial number is stamped on the plate riveted below the left-hand side of the driver's seat. The engine, spraying pump, and other equipment on the HAV 300 may vary by individual unit manufactured number. When contacting PBM Supply & Mfg., Inc for services, parts, or general assistance, please be ready to supply the manufacturer and model number information.

Limited One-year Warranty

For a period of one year, PBM Supply & Mfg., Inc. warrants to the original purchases, that all new PBM Sprayers and other PBM manufactured products sold to the buyer wether direct or by an authorized PBM Dealer, will be free of defects in materials and workmanship. PBM Supply & Mfg., Inc. obligation is expressly limited, at the sole option of, to the repair or replacement of those parts determined by PBM Supply & Mfg., Inc. personnel to have failed due to a defect as described above. Under NO CIRCUMSTANCES shall this warranty be interpreted by anyone to apply in those cases of failure due causes such as vehicle or other accidents, acts of God, transportation, neglect to perform required maintenance or other customer required services, abuse of the equipment, or causes not from the ordinary operation of the product. Further, repair of the system or any part thereof resulting from the use of incompatible materials; material not suitable due to corrosive or abrasive elements, is NOT covered under the terms of this limited warranty.

Warning:

PBM Supply & Mfg., Inc., having NO CONTROL over the environment, operation, materials chosen, or chemicals selected for use by the end user in a PBM Supply & Mfg., Inc. HAV 300 Series product, Assumes no liability for the consequences of the use or misuse of the product by the owner, his agents, employees or any others. PBM Supply & Mfg., Inc. shall NOT be liable for any special, direct, indirect, incidental or consequential damage of any kind, including but not limited to: loss of time, labor costs or other charges, including shipping, postage or transportation costs, in connection with product use or the repair or replacement of defective parts. We make claim of fitness for merchantability or any other warranty, expressed or implied. Nor is anyone else whether employed by PBM Supply & Mfg., Inc. or not, authorized to do so on our behalf. Please call 1-800-688-1334 for questions regarding this limited warranty.

Pre-run Operations

Remember always... Safety FIRST!

This is the industry standard “Safety Alert” symbol. It appears next to items or operations that could be dangerous to you or to other people using this equipment. Please read these messages thoroughly and carefully. It is essential that you read ALL of the instructions and safety regulations in this Owner’s Manual before using any equipment.

General Safety Guidelines for the HAV 300 Series

Read and understand this Owners Manual before operating this equipment. Failure to do so could result in extreme personal injury, death or equipment damage.

Prevent fire hazards Do NOT place flammable objects close to the vehicle engine. DO NOT park the vehicle over or near flammable materials (this includes, but is not limited to dry field grasses).

Do NOT allow children to operate this vehicle or it’s equipment. Keep children and pets away from all general areas of operation.

You MUST know how to stop the engine quickly, and also understand the operation of all controls of this vehicle. Never permit ANYONE to operate the equipment without proper instruction.

Keep hands, feet, hair and any loose clothing items away from all rotating parts (such as: fans, drive belts and drive lines).

Do NOT operate this HAV 300 with passengers on the vehicle at any time.

Use extreme caution when in reverse or backing the HAV 300. The spray assembly can / may limit operator visibility.

Gasoline is extremely flammable and may explode under certain conditions. Refuel your HAV 300 only in a well ventilated area with the vehicle engine STOPPED and turned OFF! DO NOT SMOKE or allow flames / sparks in the refueling area or in the areas where gasoline is stored.

Avoid spilling fuels when refueling. Fuel vapor(s) and / or spilled fuel(s) are highly flammable and can / may ignite. If any fuel is spilled, make sure the area is dry before starting the HAV 300 engine.

Never run the HAV 300 engine in an enclosed or confined area. Exhaust contains poisonous carbon monoxide gas: exposure to this gas can / may cause loss of consciousness and can / may lead to death.

The HAV 300 Series muffler becomes very HOT during operations and remains HOT for some time after the vehicle has stopped and the engine has been turned off. Avoid touching the muffler or exhaust pipe while it remains HOT or serious burns can be the immediate result.

Safety Checklist

Before operating the HAV 300, conduct ALL the following safety checks:

Vehicle

1. Check all fluid levels. Including engine fuels, oil, hydraulic oil levels and coolant.
2. Check tire pressure and lug torque.
3. Check drive belt tension.
4. Check and inspect for visible leaks in the engine and hydraulic systems.
5 Check and adjust operator / driver seat and safety belt.
6. Test smooth non-binding operation of shifting controls, throttle controls and service brakes.
7 Adjust all rear-view mirrors.
8. Without starting the engine, turn the ignition key to the ON position. You should hear the Oil Cooler Fan running, if not immediate service of the Oil Cooler Fan is required before operation of the HAV 300. Failure to service the fan will result in irreversible damage.

Spraying System

1. Check and inspect for visible leaks anywhere on the equipment.
2. Check boom retainers.
3. Check and inspect all personnel protective equipment (i.e. NIOSH approved respirator, chemical protective suit and chemical protective gloves). *Important: When using the PBM Supply & Mfg., Inc. HAV 300, or ANY sprayer, for chemical applications, consult your chemical supplier or County Agricultural Commissioner for necessary protective precautions before use.*

Breaking in the HAV 300

Some engines require a “break-in period” when new, during which special procedures must be followed for proper maintenance. Kubota Diesel Engine: V1505 ***Change the oil and oil filter cartridge after the first 50 hours of operations.***

Pre-field Operations

To perform pre-field operation checks, select and area such as a gravel lot or large ventilated shop area, and fill the tank to the proper levels with water ONLY.

1. Start the engine and adjust to desire RPM.
2. Engage the spray pump by pulling out switch located on dashboard.
3. If applicable, engage mechanical agitation by turning on the switch locate on the dash of the HAV 300.
4. On a manual HAV version, adjust the pressure regulator to desired pressure - refer to chemical label or the manufacturer’s recommendations for optimal pressure of that chemicals application.
5 Set the boom height and nozzle spacing. See Teejet®’s product catalog or your chemical dealer for catch-up specifications.
6. Activate the spray control valves with the toggle switches OR optional foot switch.
7 Check for leaks at hoses, fittings, filters, etc...
8. After all the adjustments and checks are complete, add chemical as per chemical label or manufacturer’s recommendations.

Do NOT operate the Hydrostatic HAV 300 in “High” range with a full load as damage can / may occur.

The HAV 300 Series are NOT approved for “on-highway” use!

Check your County Regulations for check valve and double check valve requirements. Check for chemical compatibility with your HAV 300 or any chemical sprayer. Refer to the chemical label or manufacturer for compatibility specifications.

After each use: rinse the HAV 300 completely in the application field. Drain the system completely and flush with water and Nutra-Sol® or similar neutralizer.

Operations and Location of Controls

Vehicle operation ~ cab controls and instruments

1. Ignition / on light / diesel pre-heat.
2. Ignition switch.
3. Throttle / speed control.
4. Fuel gauge.
5 Volt meter.
6. A/C heater combo unit (temperature) switch.
7 A/C unit on / off.
8. Blower speed switch.
9. A/C air deflectors.

Operations and Location of Controls

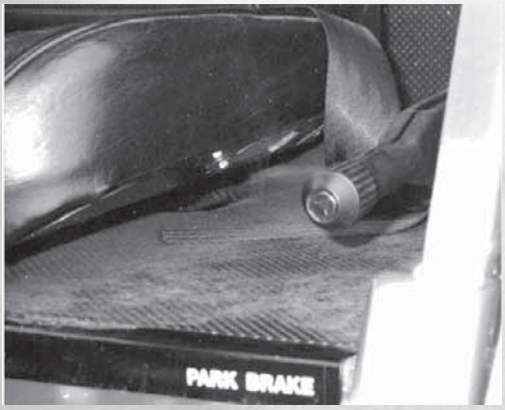
(Continued from previous page).

10. Hour meter.
11. Spray pump PTO switch.
12. Headlight switch.
13. Boom light switch.
14. Raven® sprayer monitor (optional).
15. Murphy temperature gauge.
16. High / Low range selector switch.
17. Murphy oil pressure gauge.
18. Raven® boom control foot switch.
19. Heater control cable
20. Murphy shut-down by pass switch.
21. Parking brake indicator light.
22. See photo.
23. See photo.
24. See photo.
25. See photo.

22. CD Player with Stereo Speakers

23. Manual Seat Belt

24. F-N-R Hydrostatic Control



25. Parking Break

Starting the HAV 300

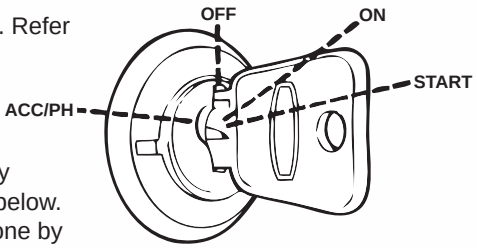
Ignition Switch Positions

OFF Shuts off the engine and all accessories. Key may only be removed from Off position.

ON Enables operation of all electrical accessories and allows the engine to continue running after initial start.

START Cranks the engine start motor. Key position must be released immediately when engine starts to prevent damage to starter. Spring-loaded to enable the switch to return to the ON position when released.

DIESEL MOTOR MODEL The HAV 300D is equipped with a Kubota® diesel engine. Refer to the engine manual for more detailed information on performance and maintenance of this engine type.



Step 1, Pre-heat the Engine

In cold temperatures it is necessary to pre-heat the engine before starting. Pre-heat by turning the ignition switch to the left and holding for the number of seconds indicated below. Do NOT pre-heat the engine for more than 20 seconds continuously (this is done by watching the indicator light on the dashboard).

Step 2, Turn the ignition switch to "ON"

and depress the oil pressure cut-out bypass switch (located on gauge panel) at the same time. If the temperature is above 23° F, pre-heat for approximately 5 seconds. If the temperature is below 23° F, pre-heat for approximately 10 seconds.

Step 3, Turn the ignition switch to "START"

until the engine starts, then immediately release the switch. Release the ignition switch if the engine does NOT start within 10 seconds. Prolonged cranking of the engine without starting it may damage the starter motor.

Step 4, Watch the oil pressure gauge

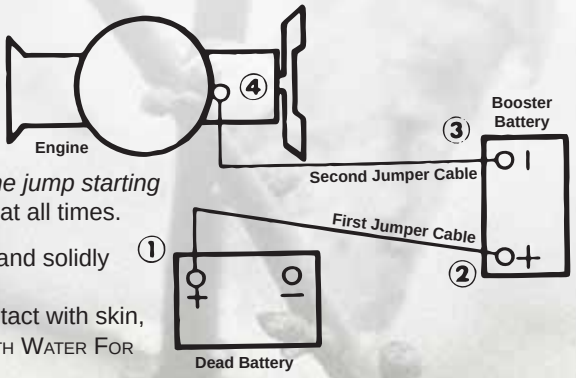
until the pressure exceeds 10 PSI, then release the oil pressure bypass switch. If the oil pressure does not register or does not rise above 10 PSI within several seconds, shut down the engine immediately and check for any of the following problems: Is the engine oil level too low? Does the engine oil have dirt in it? Is the oil pressure gauge hose faulty?

Step 5, Adjust the engine speed to desired RPM

Note: Kubota® diesel engines are equipped with Murphy oil pressure and water temperature shut down gauges. These applications require a bypass switch in order to start the engine. The bypass switch must be depressed until the oil pressure reaches 10 PSI, then release the switch.

Jump Starting the HAV 300

If the HAV 300 cannot be started because the battery is out of charge, it can be jump started from another battery. *NOTE: Batteries produce explosive gases and other explosive fuels may be present during the jump starting process.* Keep smoking materials, sparks and flames away from the battery at all times.



1. Use high quality jumper cables and make sure all connections are clean and solidly connected.
2. Wear proper eye protection before attempting a jump, in case of acid contact with skin, eyes or clothing. If Accidental Contact Does Occur, Flush Immediately With Water For ONE Full Minute And Seek IMMEDIATE Medical Attention.
3. Connect positive (+) terminals first. Be sure to NOT cross the cables while making connections. *Do NOT allow contact between the cable clamps while making connection.*
4. Connect one end of the ground cable to the ground (-) terminal on good battery first. Then connect the other end of the ground cable to a solid, bare-metal connection on the engine. *Do NOT connect to the negative (-) terminal of the battery.*
5. Start the engine.
6. Disconnect the ground cable at both ends before disconnecting the positive (+) cable.

Preparing to Operate the HAV 300

1. Conduct ALL Safety Checks.
2. Adjust the operator / driver seat for easy reach of all controls.
3. Fasten the seat belt.
4. Check the Hydrostatic control is in the “neutral” position.
5. Insert key into ignition slot.
6. Start the engine.
7. Adjust the throttle (Manufacturer suggest running machine at full throttle while in work in work mode, for better engine cooling.)
8. Check all the gauges.
9. Select low gear range when chemical application is in process or chemical is in tank.
10. Release the brake.
11. Move the hydrostatic drive lever forward (“F”) to achieve forward direction and speed control. Pull lever back to (“R”) for reverse direction and speed control.

Boom Height and Leveling Lock Bolts

Shutting down the HAV 300 engine

Note: Follow all steps for proper engine shut down.

1. Return the throttle lever to the lowest idle position.
2. Turn the ignition key to the “OFF” position.
3. With the ignition in the “OFF” position, it is now safe to remove the key.

HAV 300 Spraying System Operation

Your PBM Supply & Mfg., Inc. HAV 300 comes standard with a 300 gallon polypropylene tank, a centrifugal or diaphragm pump, and a variety of optional boom configurations (complete with Quickjet® polypropylene nozzles). When operating your HAV 300 sprayer (or any spray for chemical applications), please consult your chemical supplier, manufacturer or County Agricultural Commissioner for necessary protective precautions before use.

1. Visually check all spraying components for tightness, cracks, leaks, etc.
2. Remove filter and check for excessive contaminants (i.e. sand, dirt, debris, etc.). Reinstall filter.
3. Fill tank with water to proper level amount.
4. Release boom arm retainers and swing boom arms into position.
5. Adjust the boom height by loosening the boom height lock down bolts and sliding the boom arm into the desired height.
6. Level the boom arm with the upper lock bolts: to ensure left and right sides are EVEN.
7. Adjust the boom length for desired spray width by loosening the lock bolt and sliding the boom end out.
8. Adjust the rear boom height by removing the bolts and repositioning the boom on the hanger. Adjust to 18 - 24 inches off spray target.
9. Adjust the spray nozzle spacing. (For your specific nozzles, please consult the Teejet® product catalog or consult a chemical dealer for application rate).

Boom Length Adjuster Bolt

HAV 300 Pump Operation

10. Start the engine and adjust to desired RPM.
11. Engage the pump by pulling the switch located on the dash board.
12. If your HAV 300 is equipped with (optional) mechanical agitation, engage the hydraulic motor at this time by turning toggle switch to on position (Toggle is located on dash of HAV).
13. On manual systems, adjust the pressure regulator to desired pressure. Refer to chemical label, dealer or manufacturer for recommended optimal application pressures.
14. Check for system leaks at fittings, couplings, hoses and nozzles.
15. Check for spray pattern and catch cup amounts. Refer to the Teejet® product catalog or chemical dealer for specifications.
16. Mix the chemicals ~ see chemical label, dealer or manufacturer for proper procedures.
17. You are now ready to begin application with your new PBM Supply & Mfg., Inc. HAV 300 Series sprayer.

Rear Boom Height Bolts

HAV 300 Maintenance and Service Schedules

Kubota® Diesel Engine

Engine Oil

1. Check oil level before starting the engine or more than five minutes after it as stopped.
2. Remove oil dipstick, wipe it completely clean and replace it, remove it once more and read the fluid level on the dipstick. If the oil level is too low, remove the oil filler plug and add oil to the upper limit mark on the dipstick.

Oil Change

1. Remove the drain plug at the bottom of the engine and drain all the old oil. Draining the oil will be easier and complete if done while engine is still hot.
2. Supply new engine oil up to the upper limit on the dipstick. NOTE: NEVER change the oil while the engine is running.
3. If changing oil grades, be sure to remove ALL old oil before adding oil of the new grade.

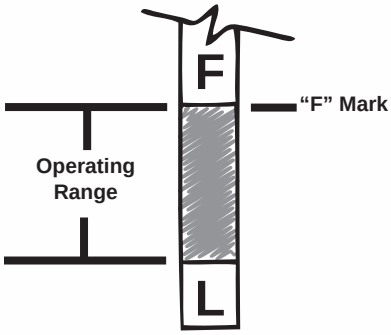


Figure 6. Oil Level Dipstick

Oil Grade Table (V1505)	
For temperatures above 77° F (25° C)	Use either SAE30, SAE10W-30 or SAE10W-40
For temperatures 32° F to 77° F (0-25° C)	Use either SAE20, SAE10W-30 or SAE10W-40
For temperatures below 32° F (0° C)	Use either SAE10, SAE10W-30 or SAE10W-40
*Important: Change the oil after the first **50 hours** of use when the engine is new.* Change the oil and filter every 200 hours after that.	

HAV 300 Service Schedules

Refer to the Kubota® engine manual provided with the HAV 300 for detailed instructions on performing the following checks:

Interval	Service Item
Every 50 hours	Check fuel pipes and clamp bands
Every 100 hours	Clean the air cleaner element, clean the fuel filter, check the battery electrolyte levels, check the fan belt tightness
Every 200 hours	Change the oil and oil filter cartridge, check the radiator hoses and clamp bands
Every 400 hours	Replace the fuel filter element
Every 500 hours	Remove sediment in fuel tank, clean the water jacket (radiator interior), replace the fan belt
Every 1 or 2 months	Recharge the battery
Every year (or six successive cleanings of the air filter)	Replace the air cleaner element
Every 800 hours	Check valve clearance
Every 2 years	Replace the battery, radiator hoses and clamp bands, replace the fuel pipes and clamps, change the radiator coolant

HAV 300 Hydraulic Systems Fluid

Check the fluid levels before operation. To check the hydraulic fluid level, refer to the sight glass located on the hydraulic reservoir on the left side center of the HAV 300. Fluid level should be through the center of the sight glass when the machine is on flat, level ground. If the fluid level is below the center of the sight glass, add clean, new hydraulic fluid up to the center of the sight glass.

Hydraulic Fluid Types:

Shell Donax® TD oils are premium quality fluids for use in transmissions, hydraulic systems, oil immersed brakes and other ancillary systems fitted to agricultural tractors and off-road equipment. They are exceptional universal tractor fluids specially formulated for use where a common fluid reservoir serves transmissions, final drives and hydraulic systems.

PBM Supply & Mfg., Inc. recommends you use Shell Donax® TD premium hydraulic fluid, or Mobile-(424) premium hydraulic fluid in the HAV 300 hydraulic system. Contact your local hydraulic oil distributor to cross reference these fluids if these are not available in your area.

For **severe conditions**, reduce the schedule durations by one-half. Severe conditions are considered high ambient temperatures, heavily load PTO, high tractive effort and / or dirty operating environments.

Normal Operation Maintenance Intervals:	
Every 200 hours	Oil change, Filter change
Every 350 hours	Filter change
Every 500 hours	Oil change, Filter change
Every 400 hours	Oil change, Filter change
Every 1,000 hours	Oil change, Filter change
Every 500 hours thereafter, or once a year	Oil change, Filter change

Other HAV 300 Required Service

Air Conditioning:

1. Check the air conditioning condenser for excessive build-up of dirt, leaves, etc., in the cooling fins. Blow out the condenser on a regular basis to ensure adequate air-flow through the fins.
2. Check the air conditioning compressor drive belts and tighten as necessary. The adjuster is located on the bottom side of the compressor. Tighten the belts until there is enough play to twist the belts one quarter turn.

Spray Pump (Hypro®):

1. The spray pump must be flushed to prevent “gumming” or corrosion inside the pump. To do this, simply flush the pump with a solution that will neutralize any liquid mixed according to the manufacturer’s directions.
2. After cleaning the pump, flush it with a 50% solution of permanent type automobile anti-freeze containing a rust inhibitor and water. A rust inhibitor such as Fluid Film (item number 2160-0010) can also be squirted into the ports of the pump. Turn the shaft several times to draw the protective liquid through the pump and coat the entire surface. Drain the pump and plug ports to keep out air during storage. For short periods of idleness, non-corrosive liquids may be left in the pump, but air MUST be kept out. Plug the ports or seal port connections.

Spray Control Systems (Raven®):

1. Flush the entire system with water after use of suspension type chemicals. Failure to clean the system can result in crystallization of chemicals which may plug the flow meter, lines, and / or tips.
2. Flush and drain the sprayer before storing. Freezing temperatures may damage the flow meter if water is not entirely drained.
3. Remove the flow meter at the end of each spraying season. Clean the flow meter turbine and inlet hub. Clean off all metal filings and wettable powders which have hardened on the plastic and metal parts. Check the inlet hub and turbine assembly for worn or damaged turbine blades and bearings.
4. Remove the console from the cab when not in use for extended periods to prevent the batteries from discharging.

Rear Axle Differential Service:

1. To check the fluid levels in the rear axle differential, remove the square head pipe plug located in the center of the rear cover on the axle differential using a 5/8 inch open end wrench or a crescent wrench.
2. The recommended fluid change in the rear axle differential for the HAV 300 is every 12 months. *If the axles become submerged in water at ANY time, the differential fluid must be drained immediately, and the vehicle serviced at that time*. Use SAE 90WT multi-purpose Gear Lube, meeting Mil. Spec. L-2105-B or 80W90, meeting API service classification GL-5 as a minimum requirement. Use one four ounce tube of Sta-Lube brand Equa-Torque limited slip additive when changing the differential fluid.

Preparing the HAV 300 for Storage

Kubota® Diesel Engine

Before storing he engine for more than a few months, clean the machine thoroughly and do ALL of the following:

1. Drain the radiator coolant. Replace with new 50/50 antifreeze coolant. Since water may freeze when the temperatures drop below 32^{O} F (0^{O}C), it is very important that an antifreeze solution is left in the machine.
2. Remove any dirty engine oil and fill with new oil. Run the engine for about five minutes to allow the oil to penetrate to all the parts.
3. Check all the bolts and nuts and tighten (if necessary).
4. Remove the battery from the engine. Recharge it and adjust the electrolyte level. Store the battery in a dry / dark place. *When the engine is not used for a long period of time, run it for about five minutes under “no load” conditions every 2-3 months to keep it free from rust. If the engine is stored without this running method, condensation from the air may cause rust on sliding parts of the engine. **If the engine is not run for longer than 5-6 months, apply oil to the valve guide and valve stem sealing and make sure the valve works smoothly before starting the engine.

Winterizing the Spraying System:

1. After the season, rinse the entire machine in application field. Drain the system and flush completely with fresh water and Nutra Sol®.
2. Do NOT perform these operations in a barn or shop, only perform in the application field.
3. Drain the system completely, empty the filter, run the pump dry momentarily to remove all excess water. See the Hypro® manual for specifics on pump maintenance.

HAV 300 Specifications

Vehicle

Fuel Tank, 25 gallons (US); Overall Length: twelve feet, eight inches (or 152 inches total); Overall Width: six feet (72 inches); Overall Height: five feet, three inches (63 inches); Wheel Centers: five feet (60 inches); Approximate Wheel Base Centers: seven feet, one inch (85 inches); Overall Dry Weight: 2,780lbs; Front Tires: 25 x 10.5 x 15; Rear Tires: 25 x 10.5 x 15; Axle: two speed hydrostatic with Dana rear-end; engine: 38hp (choice of diesel or gasoline); Hydraulic Reservoir Capacity: approximately 20 gallons (US).

Hydraulic Drive System

System Type: closed center; Pump: variable displacement piston pump; Motor: two speed Vane motor.

Auxiliary Hydraulic System

System Type: open center; Pump (1) Steering Circuit: gear pump (.24 in^3/rev); Steering Circuit: 3.1 GPM @ 3000 RPM; Pump (2) Chemical Pump Drive: gear pump (.51 in^3/rev); Steering Pressure Relief Setting: 1800 PSI.

Spraying System

Tank: 300 gallon (US) polypropylene construction; Spray Pump: (choice of) Hypro® 9910-D30 diaphragm pump or 9303P centrifugal pump.

HAV 300 Service Parts & Filters

Item number	Description
16271-32090	Kubota® V1505 Diesel engine oil filter
70000-43081	Kubota® V1505 Diesel engine fuel filter
P821575	HAV 300 Primary (outer) air filter element
P822858	HAV 300 Safety (inner) air filter element
SPE50-10	HAV 300 Hydraulic suction filter element
SPE50-10	HAV 300 Hydraulic return filter element
25-7390	HAV 300 Alternator belt
25-7390	HAV 300 Air conditioning belt (on models prior to 2009 use part # 25-7375)
110-683	HAV 300 65 AMP alternator
107-1	Pulley for 65 AMP alternator
16285-52032	V1505 Fuel pump (lift, prime pump)
17208-60010	Fuel shutoff soleniod

To order specify item number: Example: 70000-43081.

PBM Warranty Repair Policy for HAV Series Sprayers

In the event that warranty repairs are needed for any HAV Series Sprayer the purchasing party must seek approval from PBM Supply & Mfg., Inc. before ay repairs are started. PBM will then arrange to either perform the repairs, or will direct the customer to the nearest authorized HAV Service Center. **Not all PBM Sprayer Dealer are authorized to repair or service HAV Sprayers.**

Any and all warranty repairs must be performed by an HAV Service Center authorized by PBM Supply & Mfg., Inc. Any work performed by a repair center not authorized by PBM Supply & Mfg., Inc. will void the warranty and the customer will be responsible for the cost of the repairs.

I, the purchaser, have read, agree and understand the PBM Warranty Repair Policy for HAV Series Sprayers.

Purchaser Signature: _____ Date: ____/____/____

PBM Representative : _____ Date: ____/____/____

Model: _____

Invoice / Sales Order # _____

Invoice Date: ____/____/____

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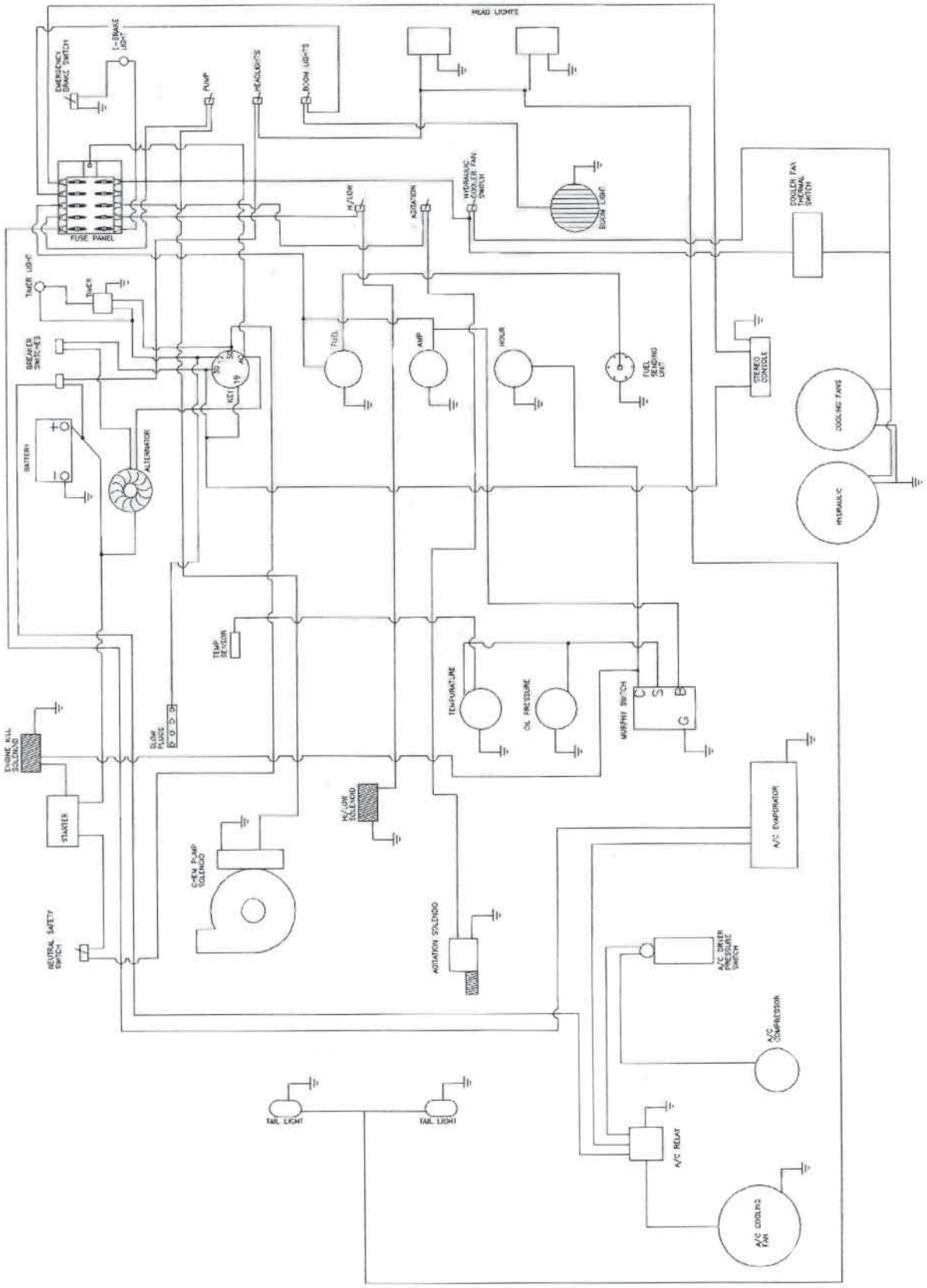
HAV 300 Maintenance Chart

Date	Hours	Type of service	Machine ID	Service Tech Initials



HAV 300 Wiring Schematic

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Cover ground without compacting it.

Versatility, with safety and comfort.

PBM Supply & Mfg., Inc.'s HAV self-propelled sprayer series offers a wide variety of configurations to optimize each machine for individual needs. Each machine provides the operator with maximum levels of convenience, safety and functionality under various herbicide, pesticide and fertilizer application conditions. Increase spraying production in orchards, vineyards, large turf and other agricultural applications. PBM Supply & Mfg., Inc has options that many other manufacturers don't. PBM Supply & Mfg., Inc. has the knowledge and creativity to build the ultimate tool the way you want.

Standard features include: Kubota® 38hp diesel engine, Dana rear-axle two-speed hydrostatic drive, front and rear spring suspension, 25 x 10.5-15 front tires / 27 x 10.5-15 rear tires, power steering, headlights, brake lights, boom lights, powder-coated steel frame (in a variety of custom colors), tinted windows, right and left sliding windows, 300 gallon elliptical poly tank and a 16 inch hinged vented lid.

Popular options include: turbocharged engine, tilt steering, on-board closed mix systems, Raven® spray-rate control systems, GPS navigation systems, combination air conditioning and heating unit, CD player, manual and hydraulic spray boom, boomless nozzles, hose reels, foam markers and 31 x 15.5-15 aggressive rear tires.

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