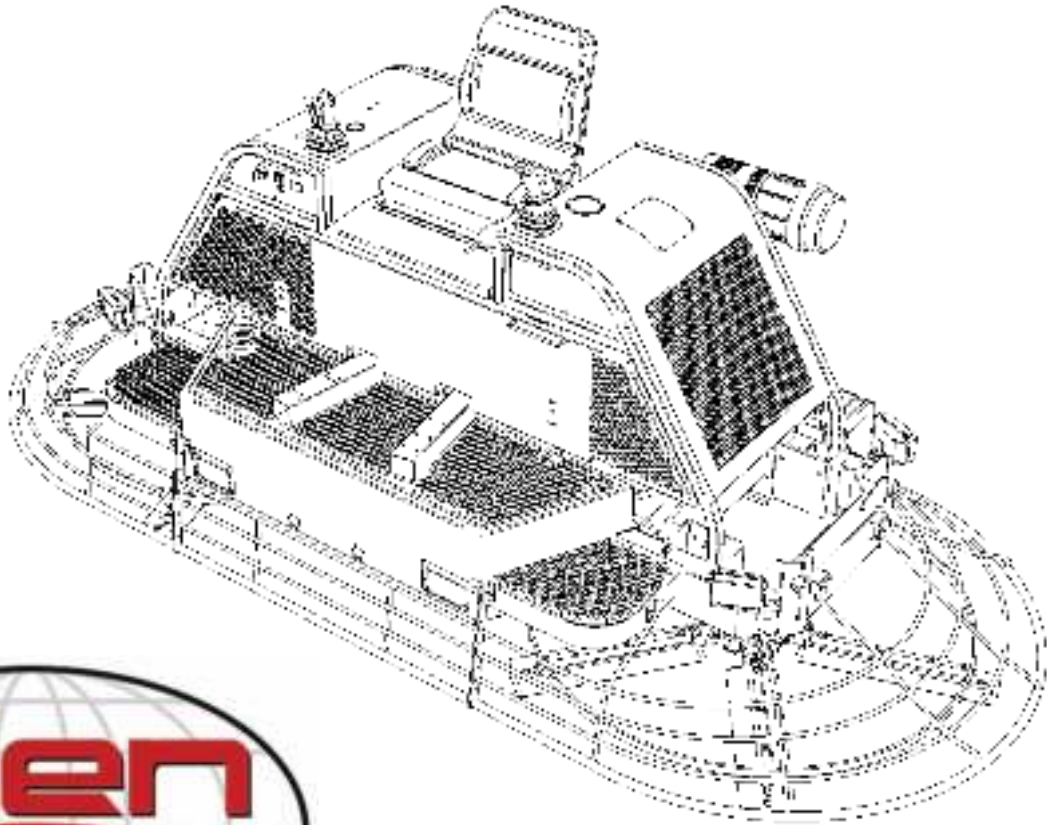


RAZORBACK® RIDER

OPERATIONS MANUAL & PARTS BOOK



HD560

Revision: 560-1 - Issue: 2 (4/2007)
Literature #: 047722

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ENGINEERING
CORPORATION®
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Hydraulic Riding Trowel

OPERATIONS

MANUAL

PARTS

BOOK

Issue Date: Nov 7, 2006

Revision: 560-1

Beginning Serial Number: 5600107001

THIS MANUAL COVERS THE RIDING TROWEL BELOW

MODEL

Part #

RIDER, HD560-1500-HYD-100KBT-DI-PSIII

047618

Allen Engineering's Razorback Riding Trowels are covered under one or more of the following patent numbers: **U.S. Design Patents:** 323,510; 340,340; 344,736; 400,542; 402,998; 402,999; 403,332. **U.S. Utility Patents:** 4,298,555; 5,108,220; 5,480,257; 5,480,258; 5,613,801; 5,685,667; 5,803,658; 5,816,739; 5,890,833; 5,934,823; 6,053,660. **Canadian Patents:** 2,039,893. **French Patents:** 0293496. **German Patents:** M9007736.9 With other Patents Pending.

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LIMITED WARRANTY

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

- A. All New Machines and Parts
- B. Hydraulic System

6 Months
2 Years

NOTICE: The engine RPM has been set at the factory at a maximum of 2,800. Any evidence of tampering to increase the RPM above 2,800 will immediately void the warranty with both Allen Engineering Corporation and the engine manufacturer.

Warranty period begins on first day of use by End User. This first day of use is established by a completed warranty card or a Bill of Sale to the end user. All warranty is based on the following limited warranty terms and conditions.

- 1.) Allen Engineering Corporation's obligation and liability under this warranty is limited to repairing or replacing parts if, after Allen's inspection, it is determined to be a defect in material or workmanship. Allen Engineering Corporation reserves the choice to repair or replace.
- 2.) If Allen Engineering Corporation chooses to replace the part, it will be at no cost to the customer and will be made available to the Distributor/Dealer from whom the customer 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 Engineering Corporation's warranty applies only to the products that are manufactured by Allen Engineering and does not cover component parts such as engines. Engine warranty claims should be made directly to an authorized factory service center for the particular engine make.
- 5.) Allen Engineering Corporation's warranty does not cover the normal maintenance of products or its components (such as engine tune-ups and oil changes). The warranty also does not cover normal wear and tear items (such as hoses, belts and consumables).
- 6.) Allen Engineering Corporation'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 Engineering Corporation. Allen Engineering Corporation specifically excludes from warranty any damage to any trowels resulting from an impact to the rotors. Allen Engineering Corporation also excludes from warranty any failure of clutches on any engine driven piece of equipment.
- 7.) Allen Engineering Corporation will pay shop labor repair on warranty at the Allen Engineering Shop Labor Rate in existence on the date of the warranty claim. An Allen Engineering Labor Chart will determine the time allowed to complete a repair and will govern the shop labor hours that will be allowed.
- 8.) Allen Engineering Corporation 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 Engineering Corporation. Allen Engineering only pays outbound freight charges when sending warranty replacement parts to the customer VIA ground service. Allen Engineering does not pay any inbound freight, however, if Allen Engineering determines this to be warranty defect only then will Allen Engineering reimburse the customer for inbound freight at standard ground rates.
- 9.) Allen Engineering Corporation's warranty policy WILL NOT COVER the following; taxes, shop supplies, environmental surcharges, air freight, travel time, loss of rental revenue, or any other charges whatsoever or any liabilities for direct, incidental, or consequential damage or delay.
- 10.) **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.**
- 11.) No Allen Engineering Corporation 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.

OPERATIONS IDENTIFICATION PLATE

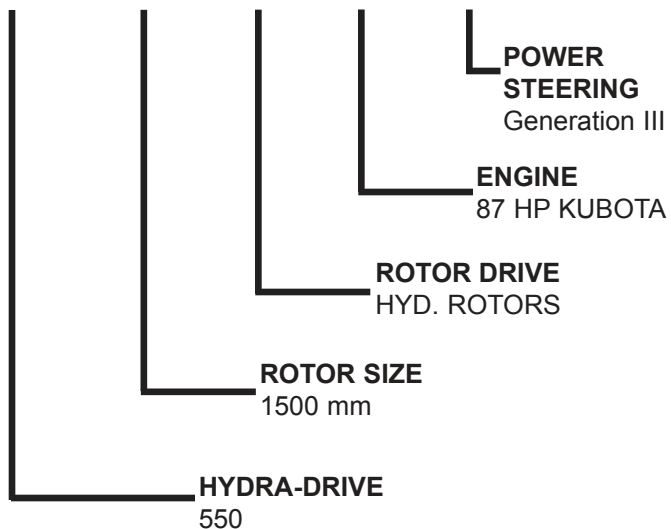
1A OPERATIONS

An identification plate listing the Model Number and Serial Number is attached to each unit and is located on the left side of the mainframe. The plate should not be removed.

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 number and serial number of the unit.

Model Number

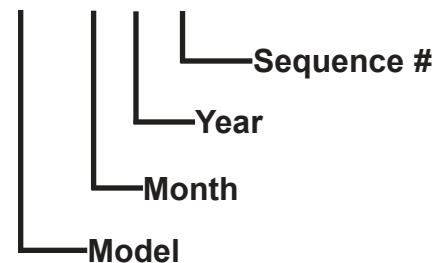
HD560-1500-HYD-100KB-PSIII



Serial Number

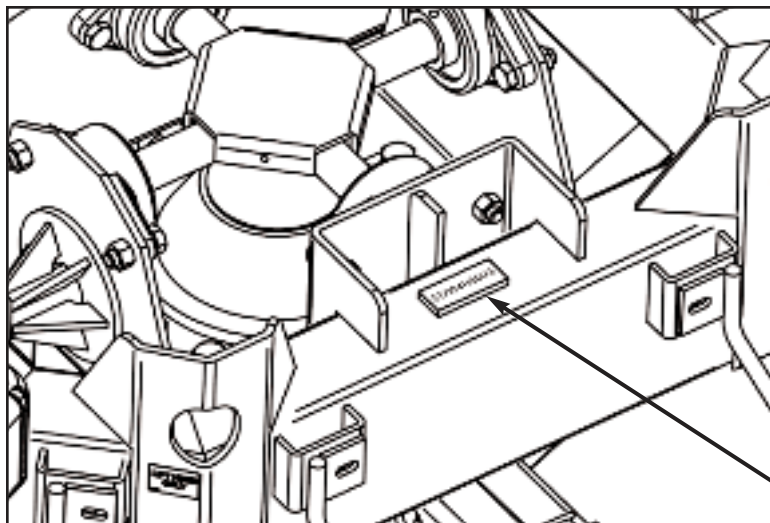
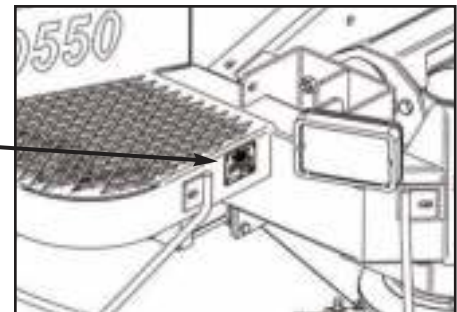
The serial number found on the identification plate is a six digit number. The model number identifies your machine and will ensure that you receive the correct replacement parts.

SAMPLE: **5601106001**



NOTE: The ID Plate is located on the left side (SOM) step down. The serial # location is on the right end portion of the main frame. Be aware of these locations.

Identification
Plate
Location



FILL IN FOR FUTURE REFERENCES

Model Number: _____

Serial Number: _____

Date Purchased: _____

Purchased From: _____

Serial #
Location

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This machine is built with user safety in mind. However, it can present hazards if improperly operated and serviced. Follow operating instructions carefully!

If you have any questions about operating or servicing this equipment please contact your Allen Engineering Distributor or Allen Engineering Corp. Customer Service at 800-643-0095 or 870-236-7751.

Important Reminder

1A OPERATIONS

Complete any warranty requirements as specified by the engine manufacturer in their instructions found inside the manual box on the back of the riding trowel seat.

Your engine is not manufactured by Allen Engineering Corp., and therefore is not covered under Allen Engineering 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 operations and maintenance instructions. See your battery manufacturer for battery warranty.

Your Distributor

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

Place distributor information here for future reference.

DISTRIBUTOR NAME: _____		PHONE #: _____ - _____
ADDRESS: _____		
CITY: _____	STATE: _____	ZIP: _____
SALESMAN: _____		
ADDITIONAL INFORMATION: _____		

1A OPERATIONS

THE INFORMATION CONTAINED IN THIS MANUAL WAS BASED UPON THE MACHINES IN PRODUCTION AT THE TIME OF PUBLICATION. **(BEGINNING WITH SERIAL NUMBER ??????????)** ALLEN ENGINEERING RESERVES THE RIGHT TO CHANGE ANY PORTION OF THIS DOCUMENT WITHOUT NOTIFICATION.

Information Contained in This Manual

This manual provides information and procedures to safely operate and maintain the Allen® HD560-1500-HYD-100KB-PSIII Model Riding Trowel.

For your own safety and protection from personal injury carefully read, understand and observe the safety instructions described in this manual.

Always operate and maintain 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 sections listed below.

1A
OPERATIONS

2A
PARTS

Ordering Parts

This manual contains an illustrated parts list for help in ordering replacement parts for your machine. Follow the instructions listed below when ordering parts to ensure prompt and accurate delivery. All orders for parts must be made through your local authorized Allen Engineering dealer. All authorized Allen Engineering dealers must fax a copy of the parts order to customer service. The fax number is (870-236-3934). Facsimile orders must contain the following information:

1. On all orders for service parts include SERIAL NUMBER and MODEL number.
2. Shipment may be delayed if this information is not included.
3. Include correct description and part number from part section 2A.
4. **State exact shipping instructions including preferred routing and complete destination address. Also please indicate your preferred freight carrier. If no freight carrier is indicated Allen Engineering reserves the right to ship the shipment the best way possible. Once a shipment leaves Allen Engineering's docks it becomes the responsibility of the freight carrier to insure that it arrives at it's intended destination.**
5. **DO NOT** return parts to Allen Engineering without receiving a written authorized Return Goods Authorization (RGA) from Allen Engineering. All authorized returns must be shipped prepaid. **All unauthorized returns will be shipped back to the addressee at their expense.**

Keep this manual or a copy of it with the machine. If you lose this manual or need an additional copy please contact your Allen distributor or Allen Engineering Corporation at (800) 643-0095 and order literature part number 043309.

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Notice.

1.1 Safety Notes

This manual contains NOTES, CAUTIONS, WARNINGS and DANGERS which must be followed to reduce the possibility of improper service damage to the equipment or personal injury. Carefully read and follow all NOTES, CAUTIONS, WARNINGS and DANGERS included in this manual.

NOTE Contains additional information important to a procedure.

CAUTION Provides information important to prevent errors which could damage machine or components.

WARNING Warns of conditions or practices which **could** lead to personal injury or death.

DANGER Warns of conditions or practices which **will** lead to personal injury or death.

1.2 Operating Safety

Familiarity and proper training are required for the safe operation of this equipment! Equipment operated improperly or by untrained personnel can be dangerous! Read the operating instructions contained in both this manual and the engine manual and familiarize yourself with the location and proper use of all controls.

Safety Precautions

1. Read operating and safety instructions before using the Riding Trowel. Operate the machine in accordance with the manufacturer's instructions.
2. Inspect your Riding Trowel for damage or tampering that can sometimes occur during shipping.
3. **If damage is found file a claim with your carrier immediately! Mark freight bill of lading as damaged shipment.**
4. **Do not** operate Riding Trowel if any guards have been removed or if the "safety switch" is not operational.
5. Only trained personnel should be allowed to operate your Riding Trowel.
6. **Never** allow more than one person on the Riding Trowel while it is in operation and the operator must always be sitting in the seat while the machine is in operation.
7. No foreign objects such as buckets, tools or materials should ever be attached or allowed to ride on the trowel during operation.
8. **Do not** attempt to fill fuel tank or oil sump while the engine is running. Allow engine to cool before refueling.
9. **Never** attempt to operate the Riding Trowel on steep inclined surfaces.
10. **Do not** use over the counter hardware to replace manufacturer's hardware.
11. **DANGER: When operating machines with gas engines in confined areas. The fumes MUST be ventilated!**
12. **Always** wear safety goggles, ear protection, a hard hat and gloves when operating the Riding Trowel.
13. **Never** tamper with the factory settings of the engine or any other components. Personal injury and damage to the engine or equipment can result if operating in ranges above maximum allowable.
14. **Always** know the location of the nearest fire extinguisher and first aid kit. Also have available the phone numbers of emergency personnel on hand. In case of emergency this information is critical.
15. **Never** disconnect or disable the safety switch. It is provided for the operator's safety and serious injury could occur if this device is tampered with.

1A OPERATIONS

1.3 Service Safety

Poorly maintained equipment can become a safety hazard! In order for the equipment to operate safely and properly over a long period of time, periodic maintenance and occasional repairs are necessary.

DO NOT attempt to clean or service machine while it is running. Rotating parts can cause severe injury.

DO NOT use gasoline or other types of fuels or flammable solvents to clean parts especially in enclosed areas. Fumes from fuels and solvents can become explosive and can be hazardous to your health.

ALWAYS operate machine with all safety devices and guards in place and in working order.

ALWAYS keep area around muffler free of debris such as leaves, paper, cartons, etc. A hot muffler could ignite such items starting a fire.

ALWAYS replace worn or damaged components with spare parts designed and recommended by ALLEN ENGINEERING.

ALWAYS remove key and disconnect battery on machines before servicing to avoid accidental start-up.

ALWAYS use appropriate lifting procedures when moving this equipment. This riding trowel is extremely heavy and should be lifted only with the lifting bridle that came packaged with the machine. The lifting capacity should be at least 3000lbs.

ALWAYS check the operating area to ensure it is clear before starting the engine.

ALWAYS test the safety kill switch before operating the trowel.

NEVER place your feet inside the guard rings while starting or operating this equipment.

NEVER leave this machine unattended while it is running.

NEVER smoke on, around or near this machine. Fire or explosion could result from flames or sparks.

ALWAYS clean the machine after each use with a pressure washer to remove buildup of concrete and oils.

NOTE: Do not use extreme or excessive pressure inside the engine compartment.

ALWAYS securely support this riding trowel when performing maintenance where the machine has to be raised.

1.3A Safety Labels and Identification

Familiarity and proper training are required for the safe operation of this equipment! Safety labels are located in strategic places in plain sight for your protection. Note where they are located and adhere to them or else serious injury can occur.



This decal is located next to the throttle lever on the right side of the seat frame.

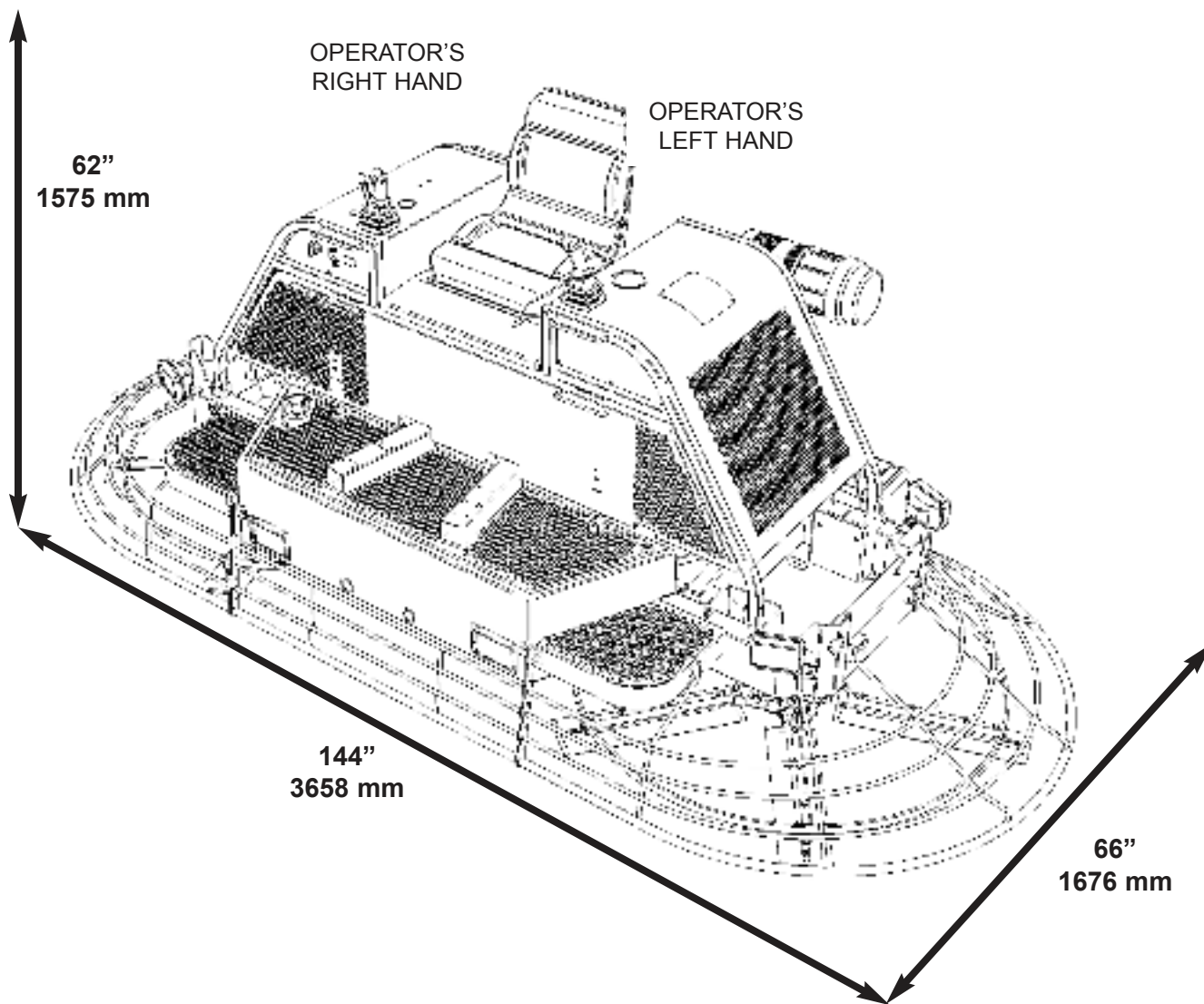


This decal is located on the access panel for the radiator.



1A OPERATIONS

1.4 Dimensions



NOTE: Throughout this manual you will see the following terminology:

RH (SOM) or LH (SOM)

SOM means Sitting on Machine. Please make note of this for future reference.

1.5 Technical Data

1A OPERATIONS

HYDRA-DRIVE MODEL	560-1500-HYD-100KB-PSIII
Dimensions (LxWxH) (w/o seat, levers, pitch control)	144" (3,658mm) x 66" (1,676mm) x 62" (1,575mm)
Panning Path Width	139" (3,531mm)
Two Rotors (diameter)	60" (1,524mm) Non-Overlapping (NOL)
Rotor Speed	130
Weight	2,935 lbs. (1,331kg)
Twelve Finish Blades	6" x 23" Finish
Hydra-Drive Rotor Motor (2)	High Efficiency Radial Piston
Hydra-Drive Hook-Ups (2)	Bolt On Stub-Shaft Style
Hydra-Drive Pump System (2)	Variable Displacement, Axial Piston Pump (Closed-loop)
Hydra-Drive Fluid Cooling System (2)	Air/Oil Fan Cooled Heat Exchanger
Hydra-Drive Filtering System	Inline Suction, Return, Charge, 10 Micron Absolute
Hydra-Drive Rotor Speed Control	Foot Pedal Pilot Control
Engine Speed Control	Lever Style (Self Locking)
Guard Rings	HD Detachable - Bolt On Style
Operator Control Panel	All-in-One Multi-Gauge
Power Retardant Spray System/Capacity	Pump Powered Two Nozzles / 6 gal. (22.7 lit.)
Steering Control System	Proportional Hydraulic Pilot Control w/ Zero Position Neutral
Pitch Control	Two Push Button Electro-Hydraulic System Joy Stick Mounted
Battery	12 Volt, 700 Cold Cranking Amps
Safety Shutdown Switch	Operator Seat
Hydraulic Fluid Capacity	20 gal. (75.7lit.)
Fuel Capacity	20 gal. (75.7lit.)
Approx. Running Time Between Fueling	11 Hours
Engine Hour Meter	Digital
Oil Pressure	Light w/ Alarm
Engine Temperature	Light w/ Alarm
Alternator Engine Mounted	60 Amps
Lights	Six(6) - 50 Watt
Nylon Strap Lifting Bridle	HD560 Standard
ENGINE: Kubota (KB) (liquid-cooled)	97.6 HP (72.8kw) @ 2,600 RPM
Engine Weight	566.6 lbs (257kg)
OPTIONAL FEATURES:	
Ten Combination Blades	8" x 23" w/ Rounded Corners
OPTIONAL ACCESSORIES:	
Sun Screen Umbrella	Available
Trowel Cover	HD550
Dolly Jacks	HD Series
Riding Trowel Trailer	6' x 20' Recommended; 8' x 25' Available
Two Pans	1500 Series (Clip-on or Safety Catch)
Trowel Arm Jig	Available
Spider Pulling Tool	Available

Engine Make & Model	Kubota 100HP V3800DI-T-E2B
Gross Intermittent output	.kW(HP)/rpm72.8(97.6)/2,600
Net Intermittent output	.kW(HP)/rpm70.6(94.6)/2,600
Net Continuous output	.kW(HP)/rpm61.3(82.2)/2,600
Fuel and type	.DieselNo.2 (ASTM D975)
Cylinder arrangement	.4 in-line
Bore x Stroke	.mm x mm100 x 120
Total piston displacement	.cc3,769
Compression ratio19.0
Length x width x height (standard model)	.mm743 x 545 x 793
Dry weight (standard model)	.kg/lb250/551

1A OPERATIONS

1.6 Description

The Riding Trowel is a modern high production machine. Finishing rate will vary depending on the operators skill and job conditions. The Riding Trowel has ten finishing blades. The *Hydra-Drive Rotor Motors* are designed to provide exceptional performance with low maintenance and trouble free use under some of the worse conditions. All Allen® Riders are equipped with a safety shutdown switch and a low oil shut down for added job safety and engine protection. Operating time between fuel refills is approximately 11 hours with a rotor speed of 130 RPM for the HD560-1500-HYD. The Hydra-Drive Series Riders are the most technically advanced trowels on the market today. With proper maintenance and use your riding trowel will provide you with exceptional service.

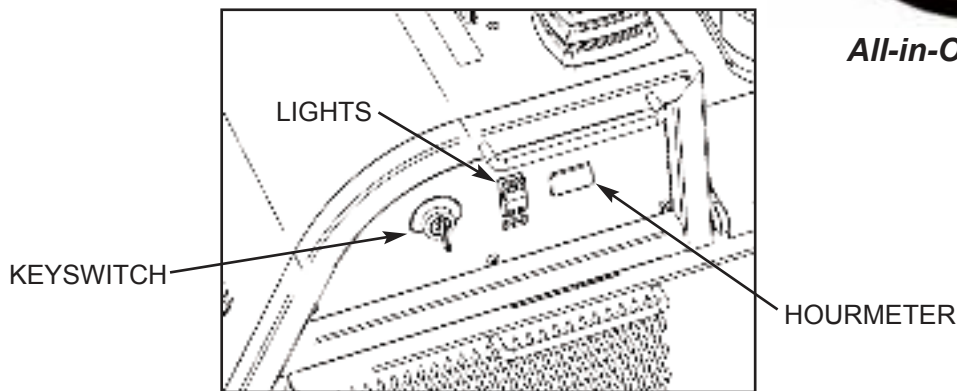
1.7 Before Starting

Before starting trowel check the following:

- * Oil level in engine:
- * Hydraulic fluid level
- * Fuel level:
- * Condition of air filter:
- * Condition of trowel arms and blades:
- * Trowel greased:
- * Engine Coolant:



All-in-One Gauge



1.8 Starting

Before starting trowel refer to drawing above for location and identification of controls.

1. Sit down correctly on the Riding Trowel Seat. DO NOT attempt to start the Riding Trowel with out an operator in the seat.
2. Preheat - turn the key counter-clockwise. Wait until the glow light goes out.
3. Turn key clockwise until the engine engages and starts
4. Turn key to the run position. Allow engine to warm up before operating trowel.

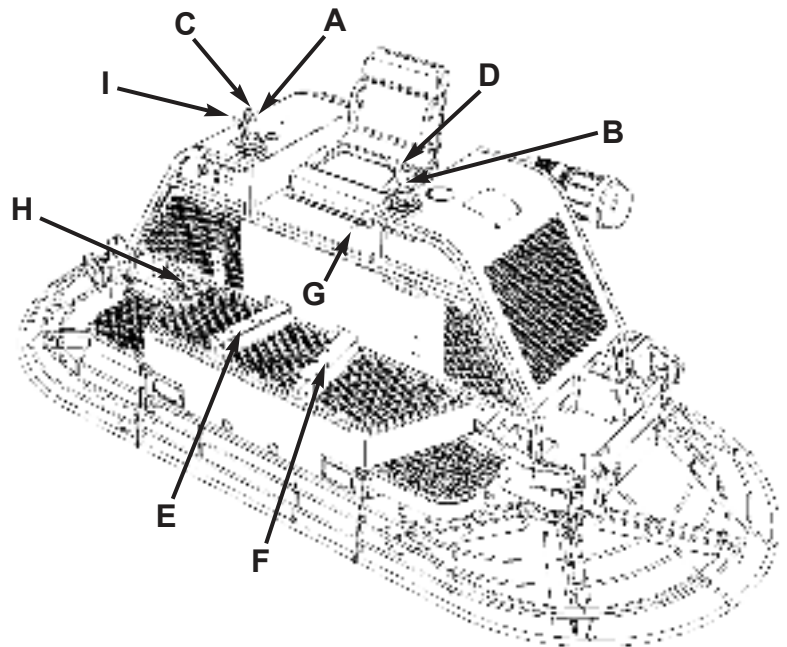
Caution: Operating the starter for more than 5 seconds can damage the starter or engine. If engine fails to start release the switch and wait 10 seconds before operating starter again.

1.9 Operating

To utilize your Allen® Rider to its fullest capacity the machine should be driven in the direction the operator is facing. This will finish the widest possible area while giving the operator an excellent view of the slab surface about to be troweled. When the machine reaches the end of the slab make a 180 degree turn and repeat the straight line of direction to the other end of the slab. To familiarize a new operator with the Riding Trowel the following steps should be taken.

1. Point out the location of all Controls

- A. right pitch control
- B. control lever (forward reverse)
- C. control lever (left & right, forward & reverse)
- D. left pitch control
- E. right foot pedal (rotor speed control)
- F. left foot rest
- G. seat adjustment
- H. fuel gauge
- I. engine throttle lever



2. With the operator in the seat, show him the functions of the control levers (B) and (C) and how to start the machine. (refer to page 1A-11)

A hard level concrete slab with water on the surface is an idea place for an operator to practice with the machine. For practice pitch the blades up approximately 1/4" on the leading edge. Start by making the machine hover in one spot and then practice driving the machine in a straight line and making 180 degree turns. Best control is achieved at full RPM.

CAUTION: DO NOT use excessive pressure on the joysticks (Power Steering). Excessive pressure does not increase the reaction time of the machine and can damage steering controls.

1.10 Stopping

To stop the trowel's movement, release the control levers (C) and (B) to their neutral position and release pressure on the right foot pedal (E). You will need to push the engine throttle lever (I) towards the front of the machine. This will reduce the speed of the engine. It is not recommended to leave the engine throttle lever in the rear position if the rotors are not turning.

CAUTION:

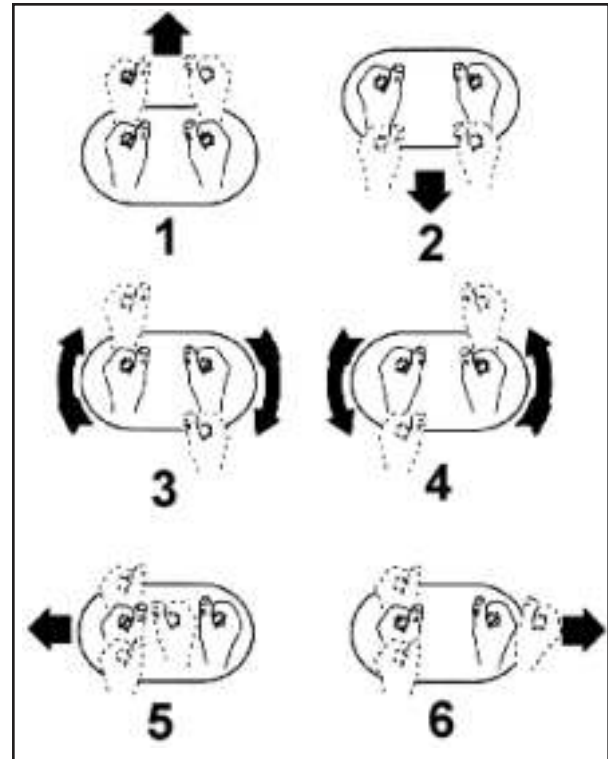
Do not shut engine off at full throttle. Instead bring the engine to idle speed and let run for 3 minutes before turning off. If this procedure is not adhered to, a hot engine shut down will take place and result in a damaged engine and loss of engine coolant.

1A OPERATIONS

1.11 Steering

A slight "feathering motion" forward and backward with the left hand control lever is required to move the machine in a straight path to the left or right while operating the right hand control lever. See illustration.

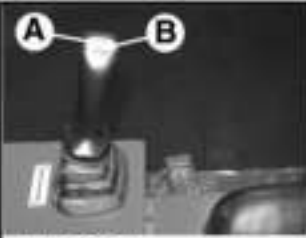
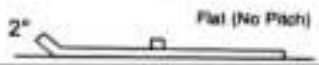
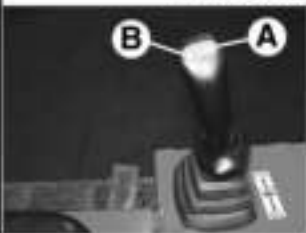




- 1> forward
- 2> reverse
- 3> rotate clockwise
- 4> rotate counter clockwise
- 5> left sideways
- 6> right sideways



1.12 Pitch Adjustment

Different pitch angles are needed as you work the different stages of the concrete. See the drawing below. When changing or setting pitch (angle of trowel blades), set the desired degree of pitch on the left side of the machine and then adjust the right side to match.

To increase the pitch, press the gray pitch control button (A) which is located on top of joystick towards the inside. To decrease the pitch, press the pitch control button (B) which is located on top of joystick towards the outside.

 LH SOM	Working Conditions of Concrete	Suggested Working Pitch	Distance Up
	① Wet surface working stage		1/8" 3.17mm
 RH SOM	② Wet plastic working stage		1/2" 12.7mm
	③ Plastic working stage		1-1/8" 28.5mm
	④ Semi-hard working stage		1-11/16" 42.8mm
	⑤ Hard finishing stage (burnishing)		2" 50.8mm

1.13 Periodic Maintenance Schedule

The chart below list basic trowel and engine maintenance. Refer to engine manufacturer's Operation Manual for additional information on engine maintenance. A copy of the engine Operator's Manual was supplied with the machine when it was shipped. To service the engine, unhook the rubber hood latches and remove the front and rear screen.

	Daily	Every 20 Hours	Every 50 Hours	Every 100 Hours
Grease Trowel Arms	X			
Check Fuel Level	X			
Inspect Air Filters Replace as Needed		X		
Check and Tighten External Hardware	X			
Grease Thrust Bearings	X			
Check Hydraulic Oil/Filter Refer to Page 1A-18	X			
Grease Control Linkage		X		
Check Valve Clearance			X	
Change Engine Oil				X
Replace Oil Filters				X

1.14 Control Linkage Lubrication

The control linkage is equipped with several grease fittings to lubricate pivot points. Grease control linkages once a week or every 20 hours of operation to prevent wear and ensure free movement and smooth response of control mechanisms and steering fulcrums. Use a general purpose grease and add one to two shots of grease to each fitting. **Do not over grease.**

1A OPERATIONS

1.15 Lift Lever Adjustment

Damage to or replacement of a trowel arm can change the adjustment of the lift lever. This can unbalance the trowel arms and cause the trowel to wobble during operation. To operate smoothly the lift lever on all arms must be adjusted the same to ensure that the trowel is balanced correctly. Adjust trowel arms using optional trowel arm jig as described below.

NOTE: Make sure that there is no pitch in the blades before attempting to remove a trowel arm.

1. Block up pressure plate (I) using wooden blocks (B).
NOTE: This step will only be used if the spider assembly is still mounted to the machine. If the assembly is not mounted you can pull the pressure plate cap off.

2. Remove stabilizer ring (R) from spider assembly.

3. Remove blades from trowel arms.

4. Loosen hex head cap screw (A) and remove it and the external star washer from the spider boss.

5. Remove trowel arms from spider 5-boss with lift levers in place.

6. Clean flats on trowel arm before placing it in the trowel arm jig (PART# 016863).

7. For HD550 series trowels use the spacer that is $\varnothing 1-1/4 \times 2-1/2$ Long (D).

8. Insert trowel arm into trowel arm jig as shown.

9. Tighten socket head bolts (E) down on the trowel arm to hold in place.

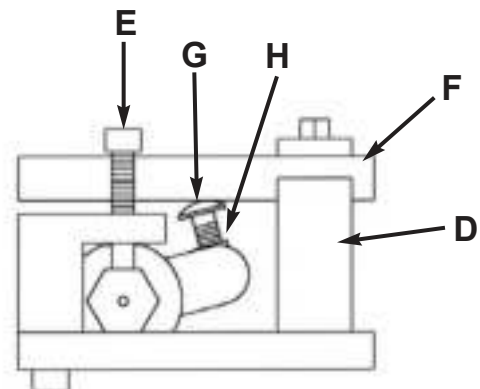
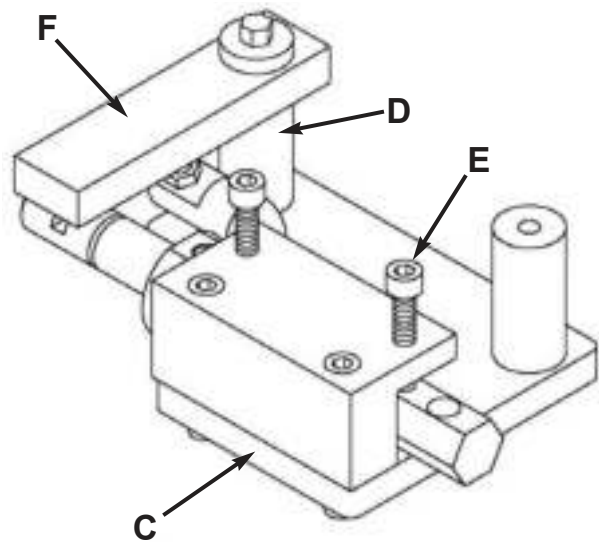
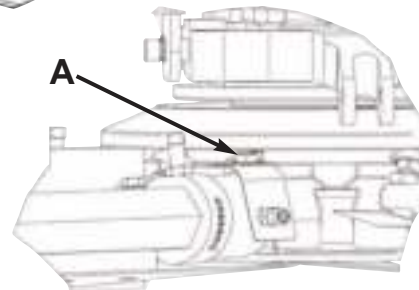
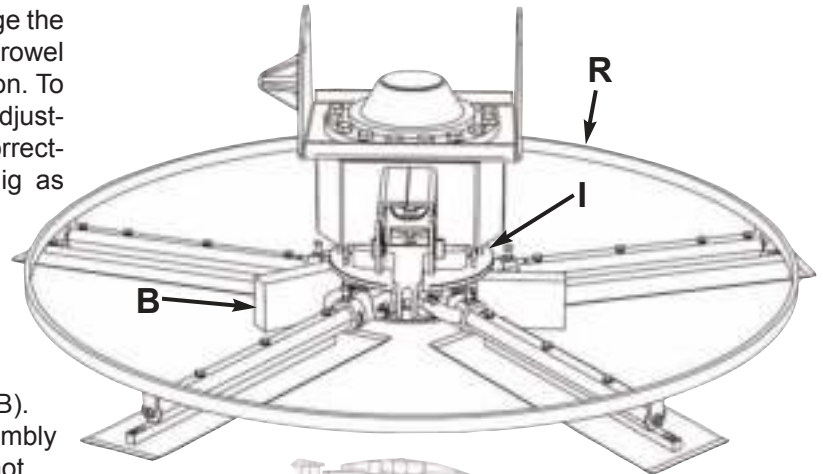
10. Place carriage bolts (G) on lift lever under the trowel arm jig (F) as shown.

11. Loosen jam nut (H) and adjust the carriage bolt so that the top of the bolt is just touching the bottom of the trowel arm jig and tighten jam nut (H).

12. Attach trowel arm to spider boss and blades to arms.

13. Tighten down hex head cap screw to secure arm in place.

14. Reattach stabilizer ring.



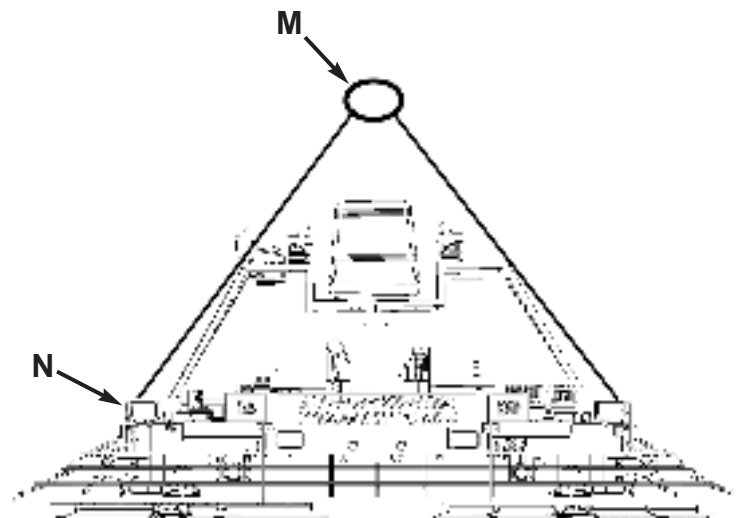
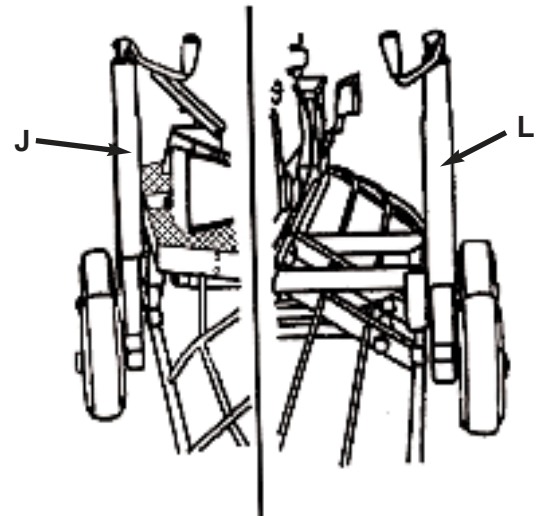
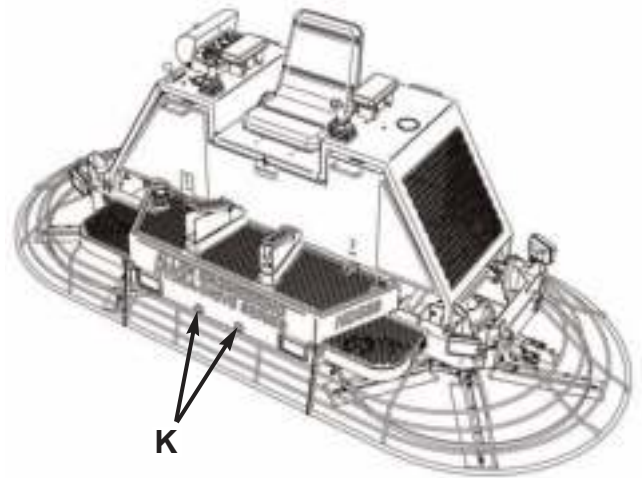
1.16 Transporting Trowel

Optional dolly jacks are available for short moves or to aid in servicing the trowel. Install dolly jacks as follows:

1. Inspect dolly jack for serviceability and damage.
2. Place riding trowel on firm level ground.
3. With the front dolly jack (J) fully insert extension tube in the holes (K) in the mainframe of the riding trowel. The front dolly jacks are equipped with short lifting tubes while the rear dolly jacks have long lifting tubes.
4. Insert the rear dolly jack (L) with the long lifting tubes into the holes provided in the rear of the mainframe. The holes in the mainframe are located directly opposite the front holes.
5. Turn jack handles clockwise to lift trowels and counter-clockwise to lower trowel.

CAUTION:

The dolly jack lifting system is designed for short moves and to aid in servicing the trowel. It is not a substitute for a towing system or trailer. A lifting bridle (M) is available and recommended for lifting the trowel. Attach the bridle to each of the four lifting eyes (N) on the trowel.



1A OPERATIONS

1.17 Battery Jump Start Procedure

Occasionally it may be necessary to jump start a weak battery. If jump starting is necessary the following procedure is recommended to prevent starter damage, battery damage, and personal injury.

Danger: Jump starting a battery incorrectly can cause the battery to explode resulting in severe personal injury or death. Do not smoke or allow any ignition sources near the battery and do not jump start a frozen battery.

Warning: Electrical arcing can cause severe personal injury. Do not allow positive and negative cable ends to touch.

1. Use a battery of the same voltage (12V) as is used with your engine.
2. Attach one end of the positive booster cable (red) to the positive (+) terminal of the booster battery. Attach the other end to the positive (+) terminal of your engine battery.
3. Attach one end of the negative booster cable (black) to the negative (-) terminal on the booster. Attach the other end to the negative (-) terminal of your engine battery.
4. Jump starting in any other manner may result in damage to the battery or the electrical system.

Caution: Over cranking the engine can cause starter damage. Allow 2 minutes for starter to cool if engaged for more than 15 seconds.

Caution: When using lights or high amperage draw accessories, run the engine at 1/2 throttle to bring the battery to charge state.

1.18 Greasing Thrust Bearing

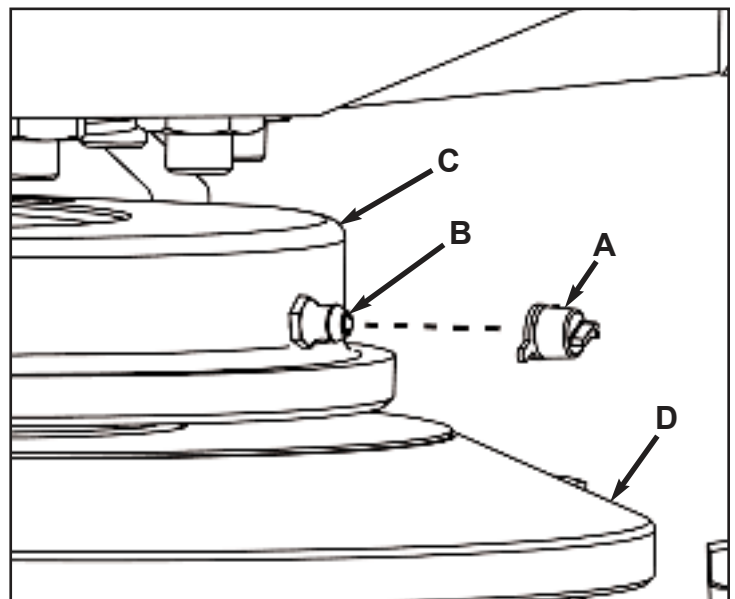
Step 1: Remove red plastic caps covering fittings (A).

Step 2: Properly seat grease nozzle on grease fitting (B).

Step 3: Add grease to pressure plate cap (C) and the pressure plate (D).

Step 4: Replace plastic caps.

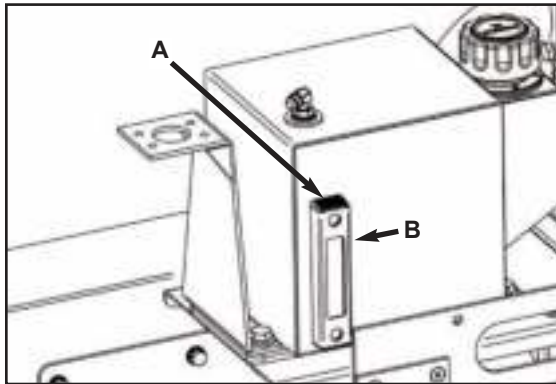
NOTE: It is imperative that this bearing be re-greased after every clean-up especially if you use a high pressure washer. If this is not done on a daily basis, you will increase the chance of mechanical failure. **Any failures due to lack of grease in the thrust bearing will not be covered under warranty.**



1.19 Hydraulic Preventive Maintenance

1A OPERATIONS

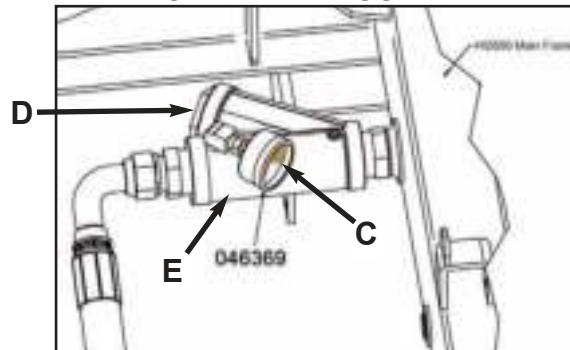
SIGHT GAUGE IS LOCATED
ON THE TANK UNDERNEATH
THE SEAT FRAME.



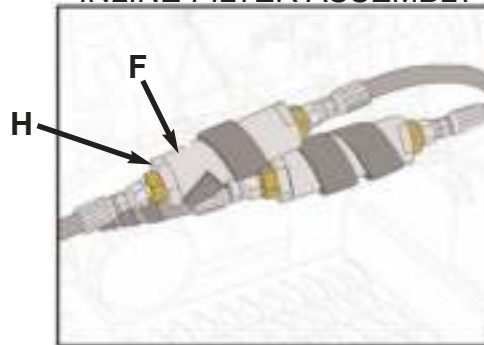
HYDAC FILTER ASSEMBLY



Y-STRAINER ASSEMBLY



INLINE FILTER ASSEMBLY



1. On a daily basis, check for leaks around all hydraulic fittings. Tighten if necessary.
2. On a daily basis, check hydraulic hoses for any wear that might occur during operations.
3. On a daily basis, visually inspect for scoring on cylinder rod ends.
4. On a daily basis, check the hydraulic oil level on the sight/temperature gauge (A). If you notice the oil is not at the top of the sight glass (B), then you will need to add more using Conoco DTE26 hydraulic oil or equivalent. If temperature of hydraulic oil rises above 160 degrees, check to make sure the hydraulic oil is full. Also check to make sure that no damage is done to the cooler or any other hydraulic components. If the problem still persist then contact Allen Engineering Customer Service.
5. On a daily basis, check the gauge-046369 (C) located on the Y-strainer assembly. If the needle on the gauge reaches 20 PSIG or is in the red, then the oil filter is dirty and needs to be replaced. Replace with Filter part number 046473.

Steps for Replacing Y-Strainer Filter:

- A. Remove the plug (D) located on the side of the filter assembly (E).
- B. Replace the filter. NOTE: Try and do this quickly and accurately as possible to prevent a great loss of hydraulic fluid.
- C. Replace the cap. Tighten to ensure that the o-ring is properly seated. Do not over tighten.

Note: If you do not experience any problems with the filter, it is a good practice to replace the filter on a annual basis.

Steps for Replacing Inline Filters:

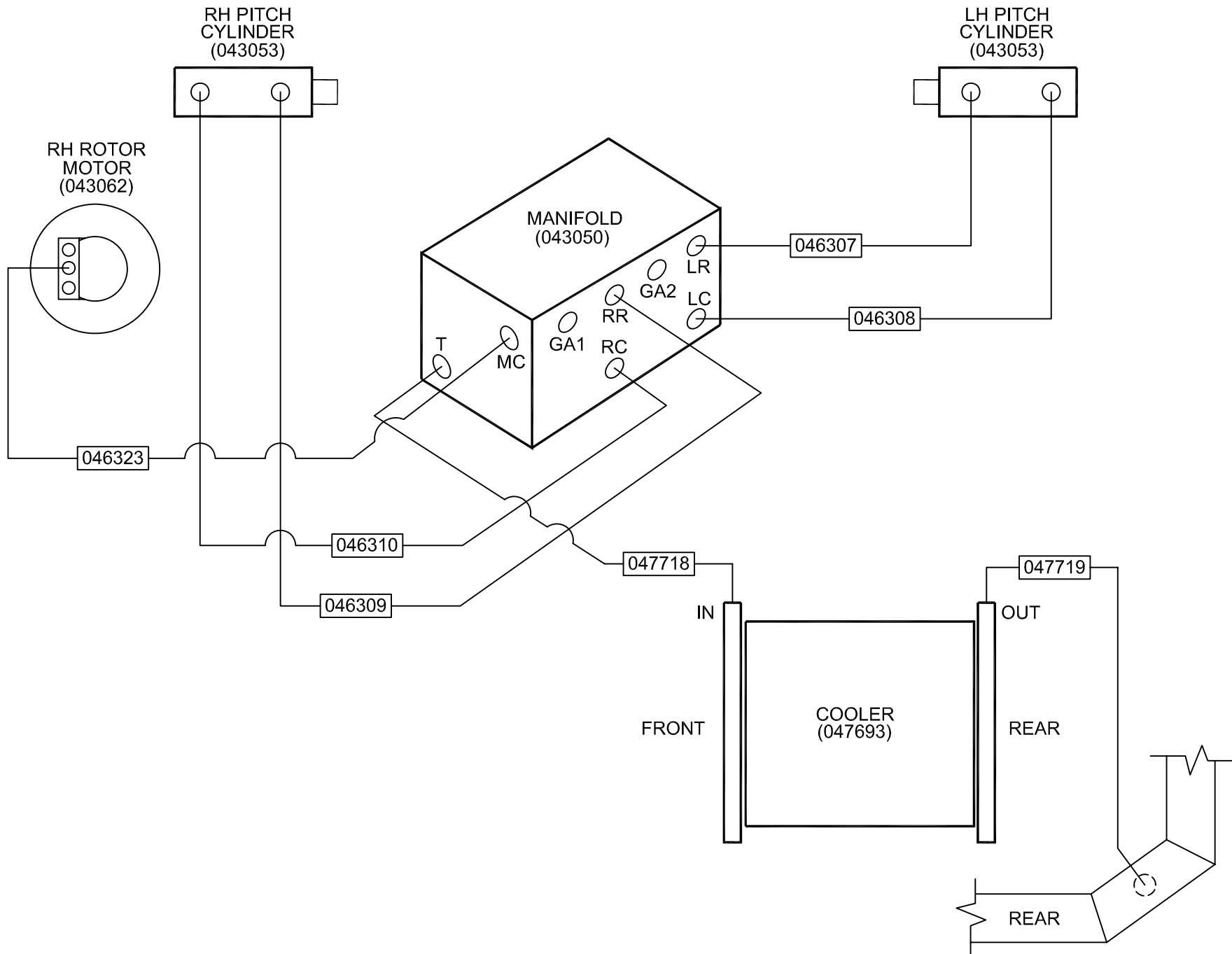
- A. Remove the end cap (H) located on the end of the inline assembly (F).
- B. Replace the filter part # 040422. NOTE: Try and do this quickly and accurately as possible to prevent a substantial loss of hydraulic oil.
- C. Replace the cap. Tighten to ensure that the o-ring is properly seated. Do not over tighten.

Steps for Replacing Hydac Filter:

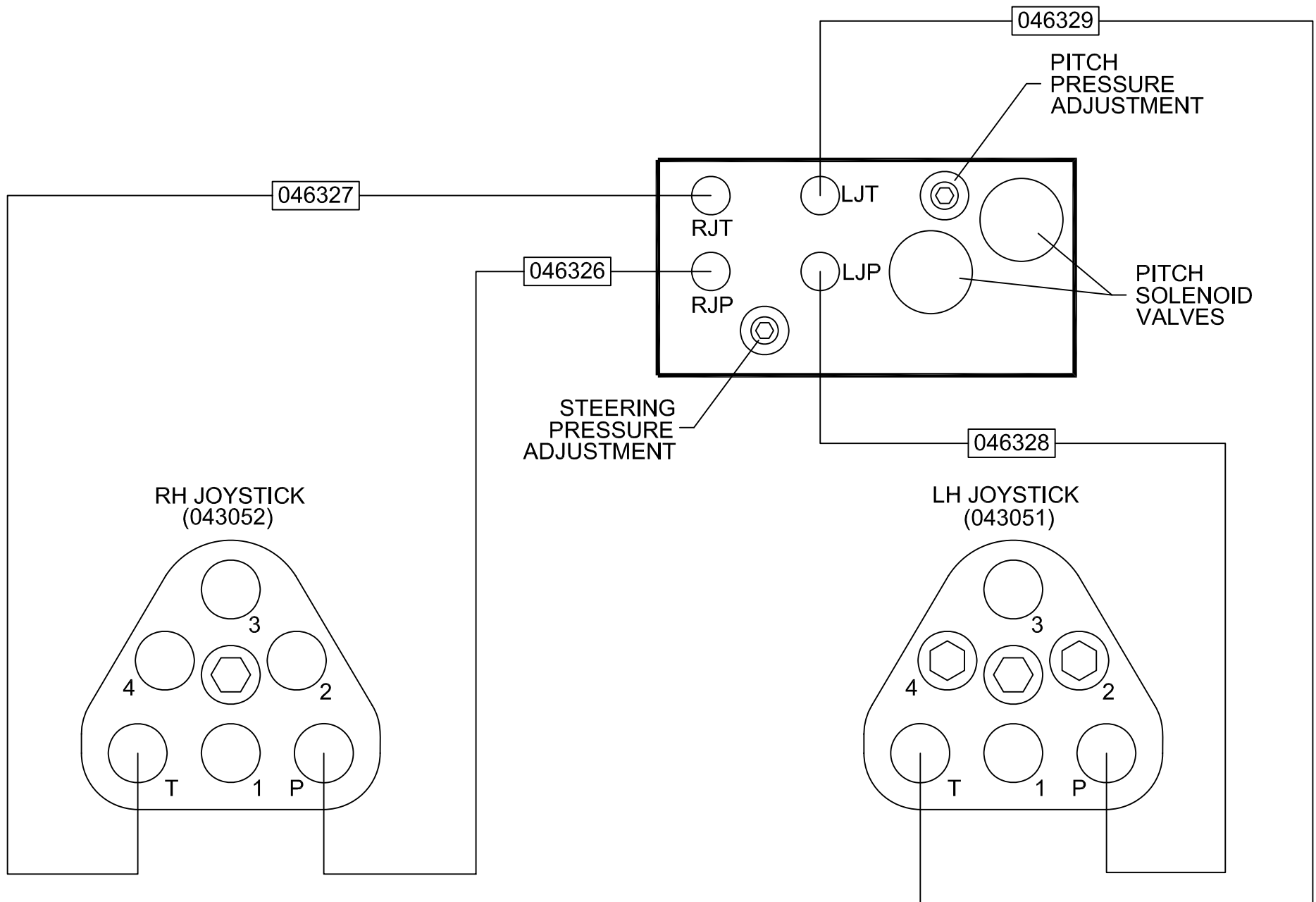
- A. Check the sight gauge (J) daily. If the gauge is red instead of green, replace the filter.
- B. Unscrew the filter containment cup (M) and remove old filter. Replace old filter with new part # 043418.
- C. Replace filter containment cup. Tighten to ensure that the o-ring is properly seated. Do not over tighten.

6. On a yearly basis, grease operator joystick mechanisms. Also check for tears and cracks in the rubber boots.
7. On a yearly basis, it is recommended to change hydraulic oil. It will take approximately 22 gallons of Conoco DTE26 hydraulic oil or equivalent to completely change out the hydraulic oil system of your rider.

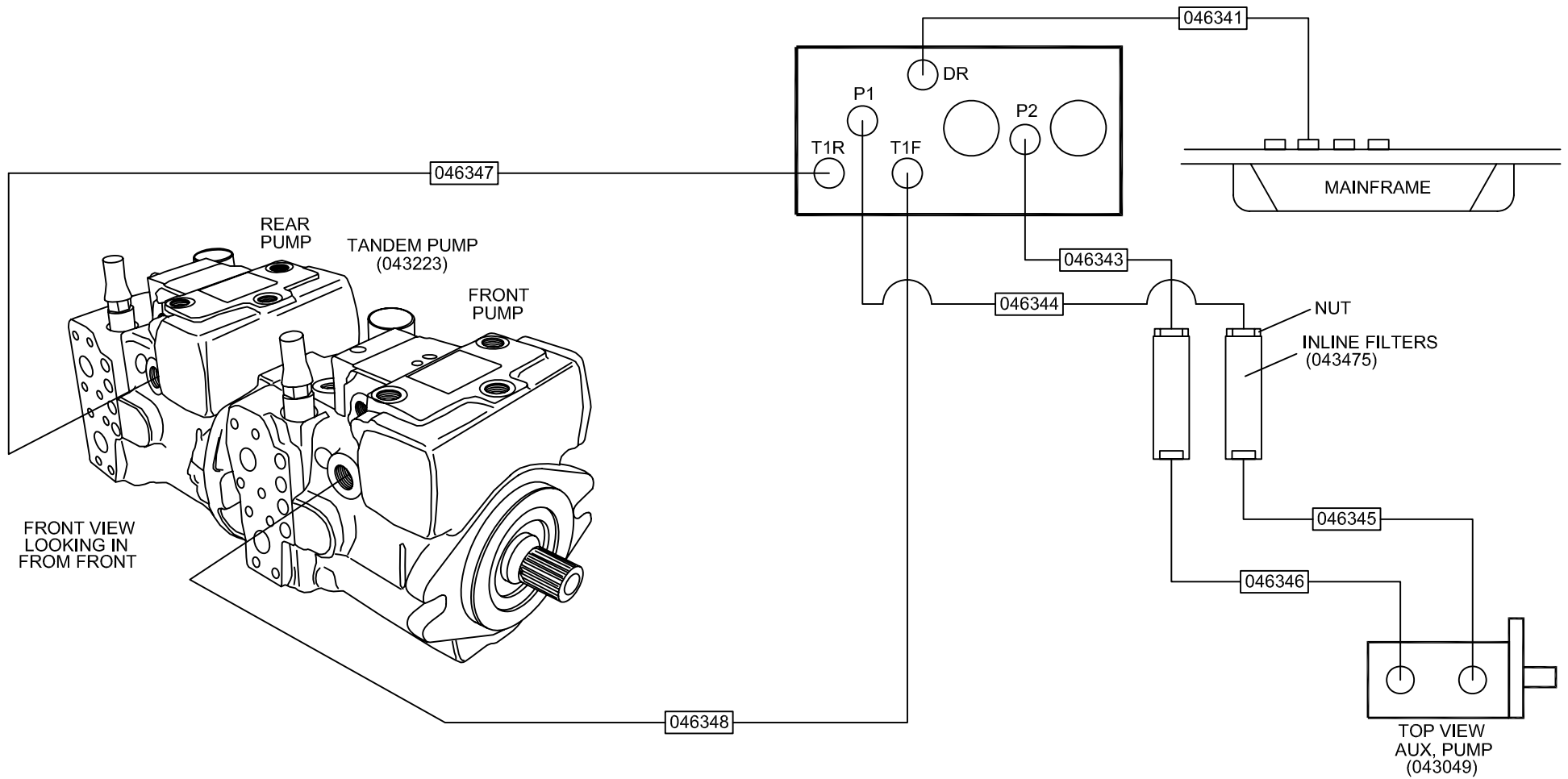
FRONT AND SIDE MANIFOLD HOSE SCHEMATIC



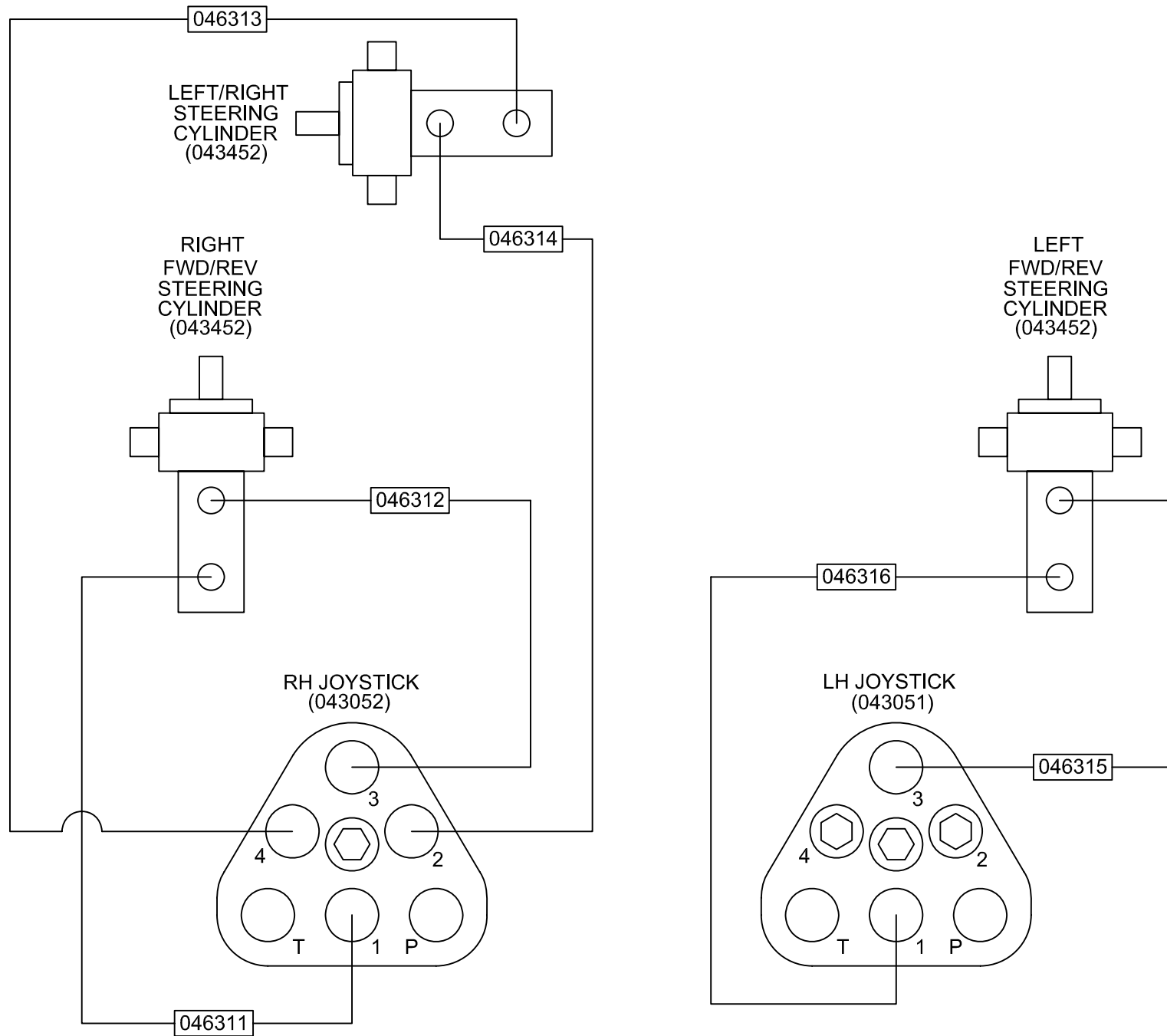
TOP MANIFOLD HOSE SCHEMATIC



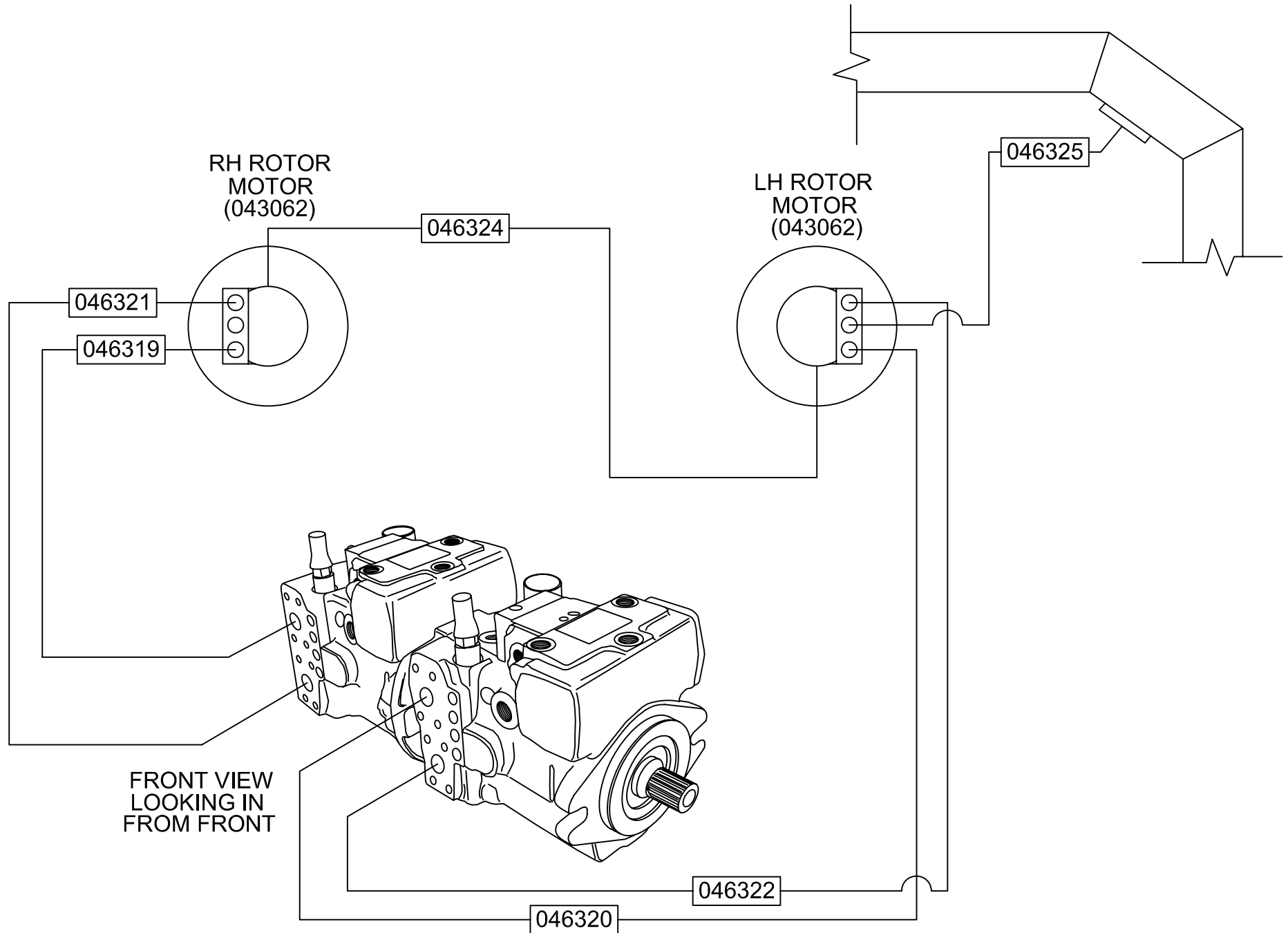
BOTTOM MANIFOLD HOSE SCHEMATIC



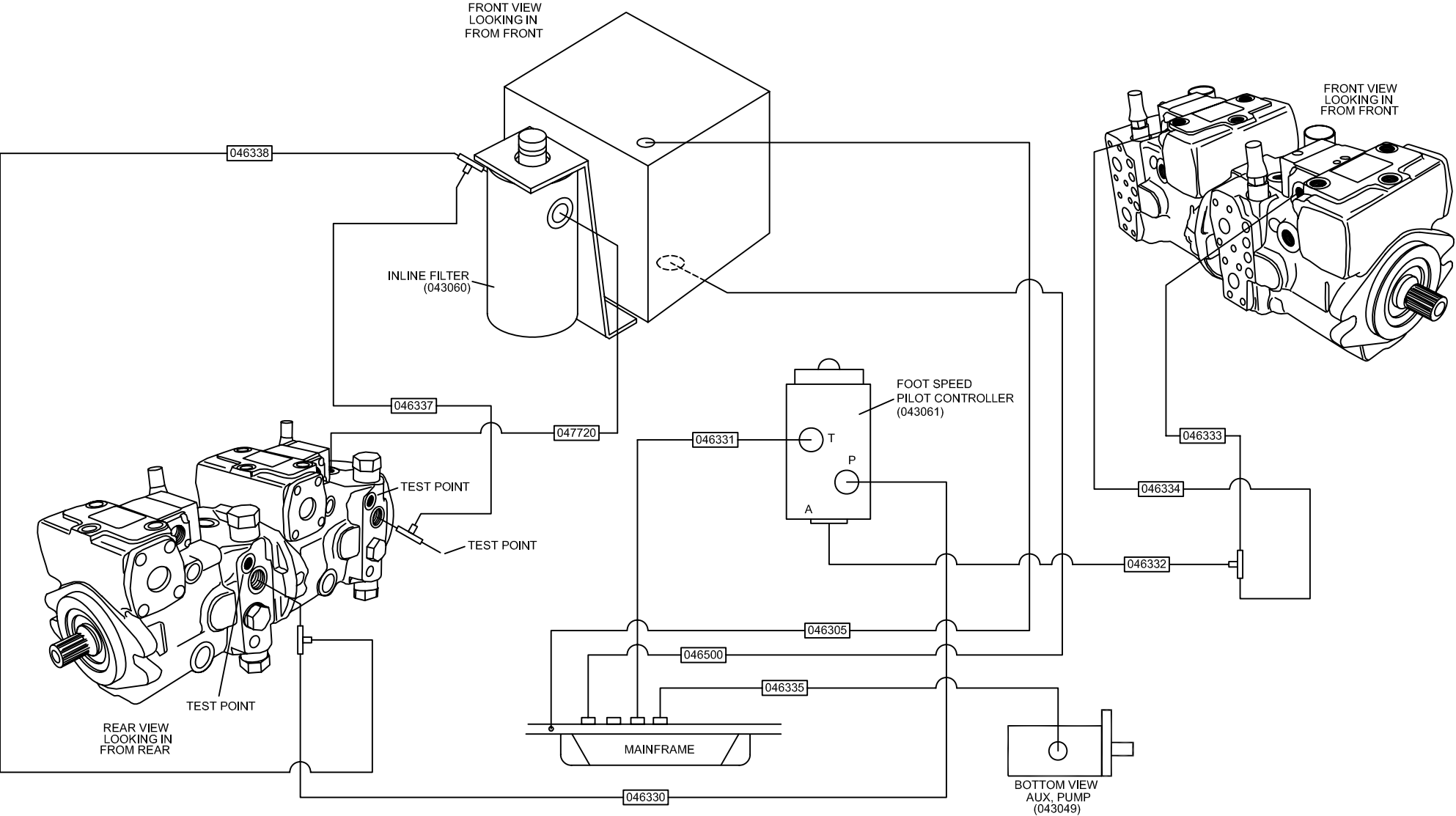
STEERING CYLINDER HOSE SCHEMATIC



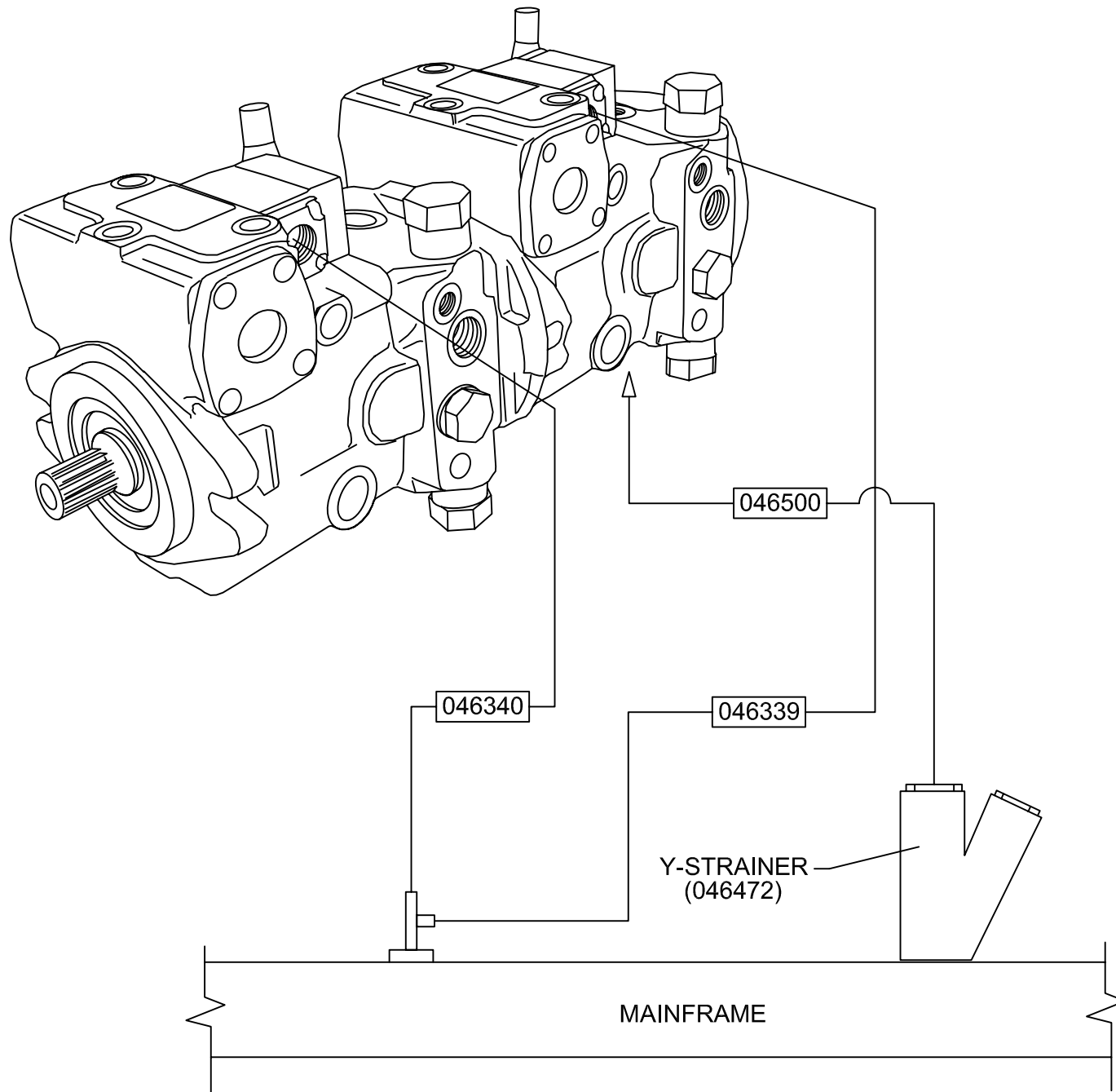
ROTOR MOTOR HOSE SCHEMATIC



OVERFLOW TANK, FILTER AND FOOT CONTROL HOSE SCHEMATIC

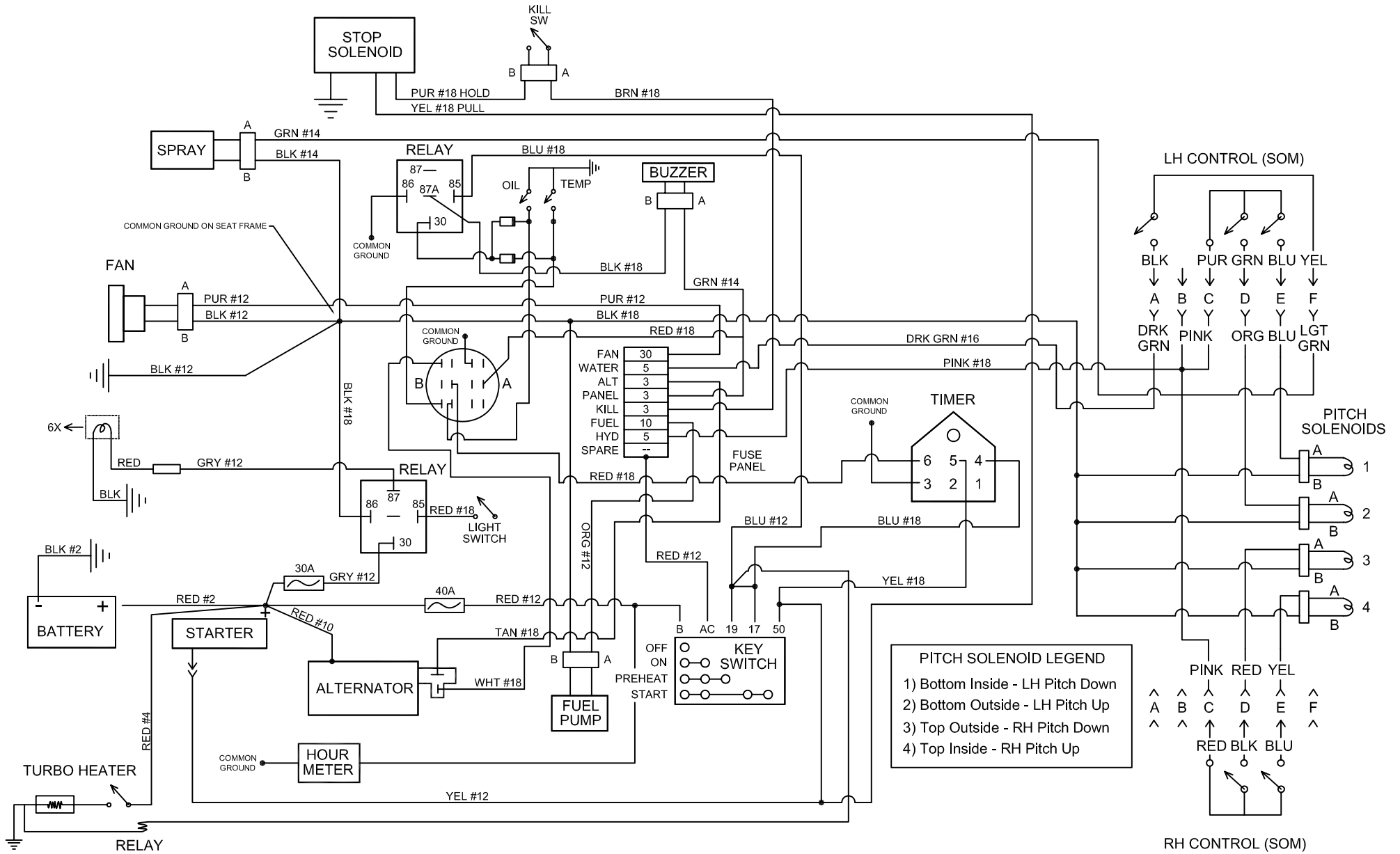


Y-STRAINER HOSE SCHEMATIC



HD550C Wiring Schematic

AS OF 10/31/06



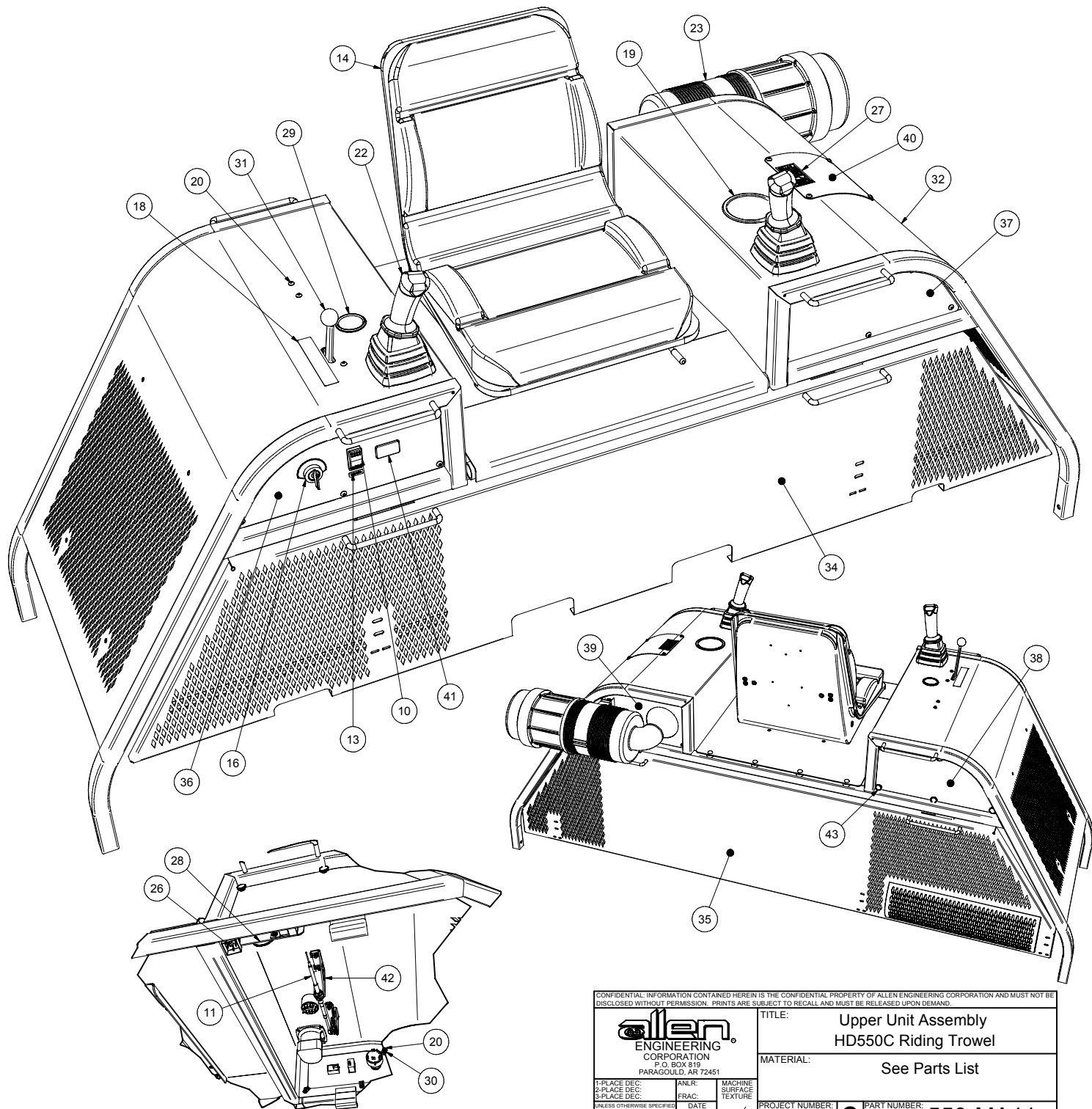
HD550-1500C-HYD Parts Information TABLE OF CONTENTS


1)	Upper Unit Assembly	550-MA11
2)	Lower Unit Assembly	550-MA10
3)	Spray System Assembly	550-MA09
4)	Fuel System Assembly	550-MA08
5)	Y-Strainer Filter Assembly	550-MA06
6)	Left Hand SOM Rotor and Pitch Assembly	550-MA05
7)	Right Hand SOM Rotor and Pitch Assembly	550-MA04
8)	Engine Assembly	550-MA03
9)	Foot Control Assembly	550-MA02
10)	Frame and Rings Assembly	550-MA01
11)	Dolly Jack Assembly	550-MA12

This machine is built with user safety in mind. However, it can present hazards if improperly operated and serviced. Follow operating instructions carefully!

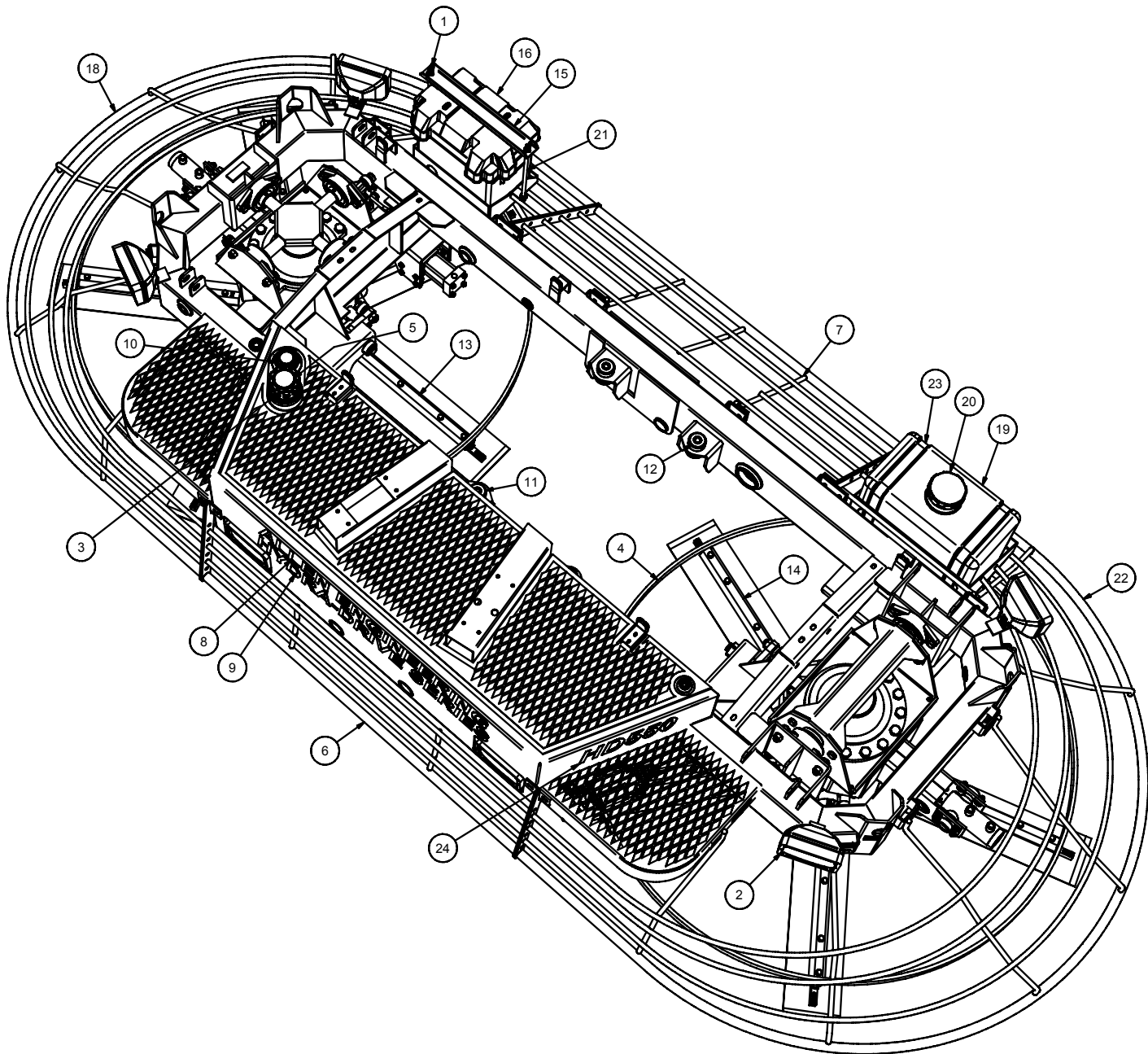
If you have any questions about operating or servicing this equipment please contact your Allen Engineering Distributor or Allen Engineering Corp. Customer Service at 800-643-0095 or 870-236-7751.


Parts List			
ITEM	PART #	DESCRIPTION	QTY
1	010001	FSTN, HHCS 1/4-20 X 1/2 GR 5	2
2	010035	FSTN, HHCS 3/8-16 X 3/4	2
3	010082	FSTN, FW 5/16	4
4	010091	FSTN, LW 3/8	2
5	010100	FSTN, NUT HEX 5/16-18	4
6	010102	FSTN, NUT HEX 3/8-16	2
7	018264	INSULATOR RUBBER SAFETY SWITCH	1
8	024984	PIVOT, FOOT SPEED CONTROL	1
9	026226	FSTN, PIN COTTER 3/32 X 3/4	1
10	032125	SWITCH, ROCKER	1
11	032301	CABLE, THROTTLE 72" HD	1
12	034621	HORN, 12 VOLT	1
13	034876	DECAL, LIGHTS	1
14	037769	SEAT, F/ RIDER	1
15	037770	ARM REST F/ SP400 (NOT SHOWN)	1
16	037785	KEYSWITCH, KUBOTA (E02)	1
17	038965	BLOCK, 200B/150B 8-WAY FUSE	1
18	040441	DECAL, CRUISE CONTROL	1
19	041537	HOLDER, CUP FOR RIDERS	1
20	042343	FSTN, SFBHCS 1/4"-20 x 3/4	25
21	043051	CONTROLLER HD550 LH (JOYSTICK)	1
22	043052	CONTROLLER HD550 RH (JOYSTICK)	1
23	043225	BREATHER, AIR F/ VLR	1
24	043479	DECAL, FUSE POSITION MARKER	1
25	061374	SW, ROUND SEAT (N.O.)	1
26	047052	RELAY, WEATHERPROOF	3
27	047265	DECAL, HOT COOLANT WARNING	1
28	047372	PLATE INSIDE F/ 500 SEAT FRAME	1
29	047406	GUAGE, MULTI FUNCTION	1
30	047546	FSTN, 1/4-20 PAL SNAP NUT	26
31	047643	LOCKING CONTROL, QUADRASTAT	1
32	047650	SEAT FRAME, HD550 GEN2	1
33	047665	BUMPER, RUBBER F/ SEAT PLATE	4
34	047666	SCREEN, FRONT GEN2 HD550	1
35	047670	SCREEN, REAR GEN2 HD550	1
36	047676	PLATE, FRONT ACCESS PANEL RH	1
37	047678	PANEL, ACCESS COVER LH FRONT	1
38	047681	PANEL, ACCESS REAR RH HD550	1
39	047682	BREATHER MOUNT, LH REAR HD550	1
40	047683	COVER, RADIATOR ACCESS HD550	1
41	047685	HOURLMETER, SENDEC	1
42	047694	BRACKET, THROTTLE F/ HD550C	1
43	047699	THUMB SCREW, 1/4-20 x 3/4	5



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 1-PLACE DEC. 2-PLACE DEC. 3-PLACE DEC. <small>UNLESS OTHERWISE SPECIFIED</small>		TITLE: Upper Unit Assembly HD550C Riding Trowel	
		MATERIAL: See Parts List	
MACHINE SURFACE TEXTURE <input checked="" type="checkbox"/>	ANLR DATE: 0/30/06	PROJECT NUMBER: C	PART NUMBER: 550-MA11
DRAWN BY: AW	CHECKED BY:	SCALE:	NEXT ASSEMBLY:
		RECD:	WEIGHT:
		1/ST:	REVISION: 2

Parts List			
ITEM	PART #	DESCRIPTION	QTY
1	013531	FSTN, NUT WING 3/8-16	2
2	064749	LIGHT, PREP F/ RIDING TROWELS	6
3	039278Y	CAP, DIESEL TANK YELLOW	1
4	039499	RING, STABILIZER WELDMENT	2
5	041510	DECAL, DIESEL ONLY CAP	1
6	042874	RING, FRONT HD550	1
7	042875	RING, REAR HD 550	1
8	043300	DECAL, ALLEN ENGINEERING 2 3/4 X 30	1
9	043301	DECAL, HYDRA-DRIVE SERIES 2 3/4 X 30	1
10	043332	GAUGE, HD550 FUEL	1
11	043364	Isolator, Rear Motor Mount	2
12	045757	Isolator, Rear Motor Mount	2
13	046233	ASSY, RIGHT HAND (CCW) SPIDER	1
14	046234	ASSY, LEFT HAND (CW) SPIDER	1
15	046693	STRAP, BATTERY BOX	1
16	046696	BOX, STANDARD BATTERY	1
17	047604	BATTERY, 700CCA 12V 48-B (NOT SHOWN)	1
18	047687	RING, END RH W/ BATT TRAY HD550	1
19	047700	TANK, 6 GALLON WATER PLASTIC HD550	1
20	047701	CAP, 3-1/2" VENTED BLACK HD550	1
21	047704	ROD, BATTERY RETAINER	2
22	047706	RING, HD550 LH END W/ TANK TRAY	1
23	047709	STRAP, WATER TANK WELD'T HD550	2
24	047711	DECAL,HD 550C 3 X 9	2

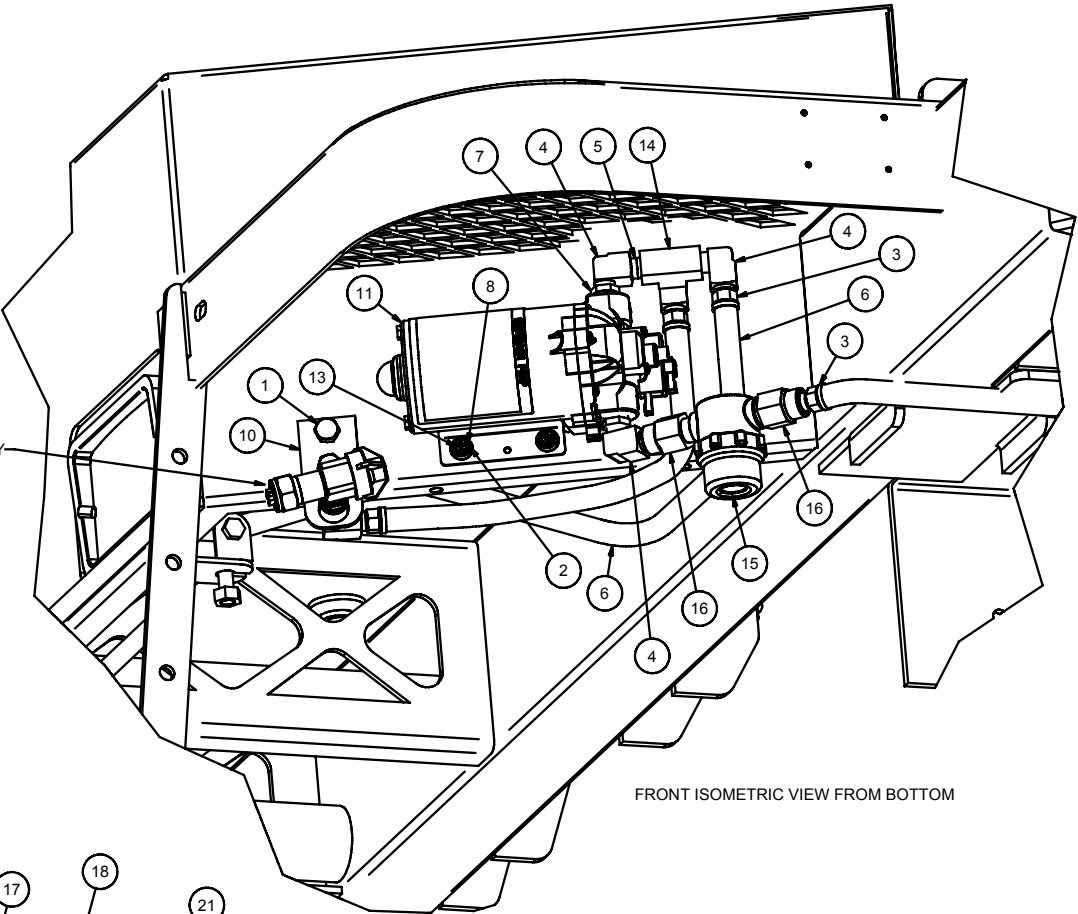


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 allen. ENGINEERING CORPORATION P.O. BOX 819 PARAGOULD, AR 72451		TITLE: Lower Unit Assembly HD550C Riding Trowel	
		MATERIAL: See Parts List	
1-PLACE DEC: 2-PLACE DEC: 3-PLACE DEC:	ANLR: FRAC: DATE:	MACHINE: SURFACE: TEXTURE:	PROJECT NUMBER: C
UNLESS OTHERWISE SPECIFIED DRAWN BY: AW 10/06	DATE: 10/06	PART NUMBER: 550-MA10	CHECKED BY:
SCALE:		NEXT ASSEMBLY:	RECD: WEIGHT: 1/35" 2

Parts List			
ITEM	PART #	DESCRIPTION	QTY
1	010036	FSTN, HHCS 3/8-16 X 1	4
2	010081	FSTN, FW 1/4	4
3	010194	FTG, PUSHLOK MALE 3/8 X 1/4-18	5
4	010220	ELBOW 1/4 X 1/4 90 DEG STREET BR	5
5	012393	NIPPLE 1/4 NPT BI CLOSE	2
6	013392	HOSE, PYTHON BLUE 3/8"	9.75'
7	013557	BUSHING 3/8 X 1/4 BRASS HEX	2
8	013740	External Tooth Lock Washer, #10	4
9	026930	PLATE, NOZZLE MOUNTING RH SIDE	1
10	026931	PLATE, NOZZLE MOUNTING LH SIDE	1
11	033735	PUMP, SPRAY SYSTEM	1
12	036767	DECAL, "RETARDANT ONLY"	1
13	036791	FSTN, RHMS 10-32 X 1 1/4	4
14	036937	TEE, 1/4 BRASS	1
15	040209	FILTER, RIDER SPRAY SYSTEM	1
16	040388	FTG, 3/8X1/4 BRASS FM TO FM REDUCER	2
17	047700	TANK, 6 GALLON WATER PLASTIC	1
18	047701	CAP, 3-1/2" VENTED BLACK	1
19	047702	FTG, "L" FUEL 1/4 NIPPLE 90°	1
20	047703	BUSHING, WATER TANK	1
21	047709	STRAP, WATER TANK WELD'T	2

NOT SHOWN

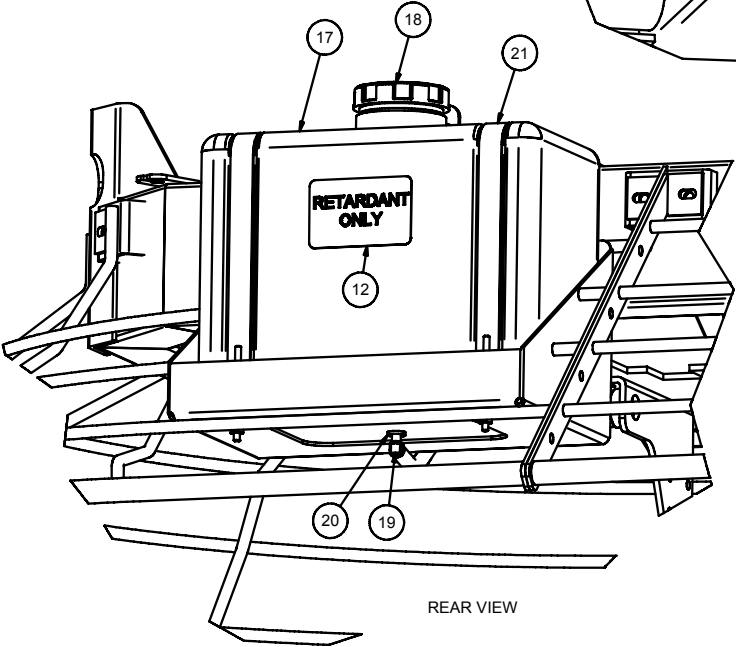
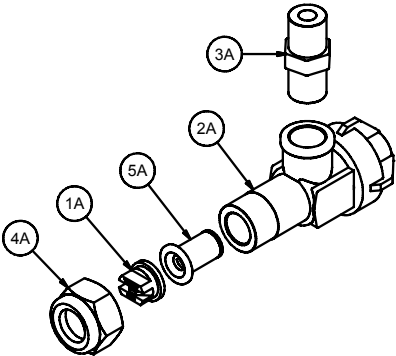
SEE NOZZLE ASSEMBLY




FRONT ISOMETRIC VIEW FROM BOTTOM

NOZZLE ASSEMBLY - 047520

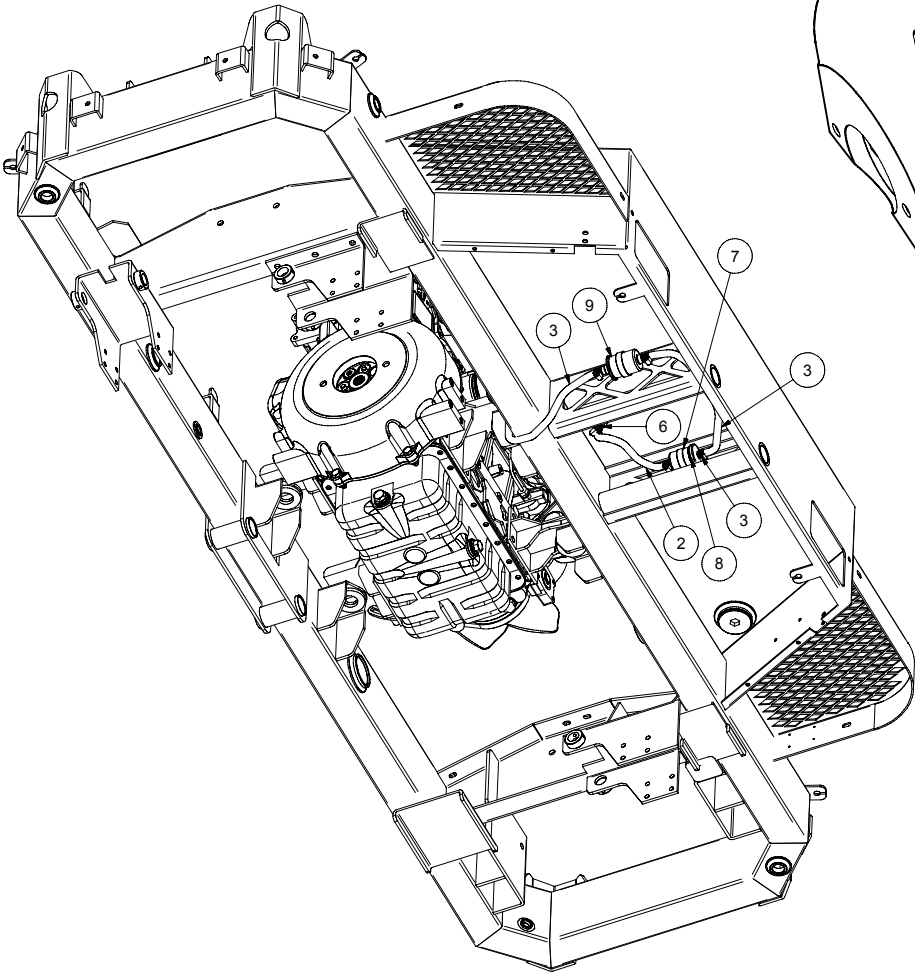
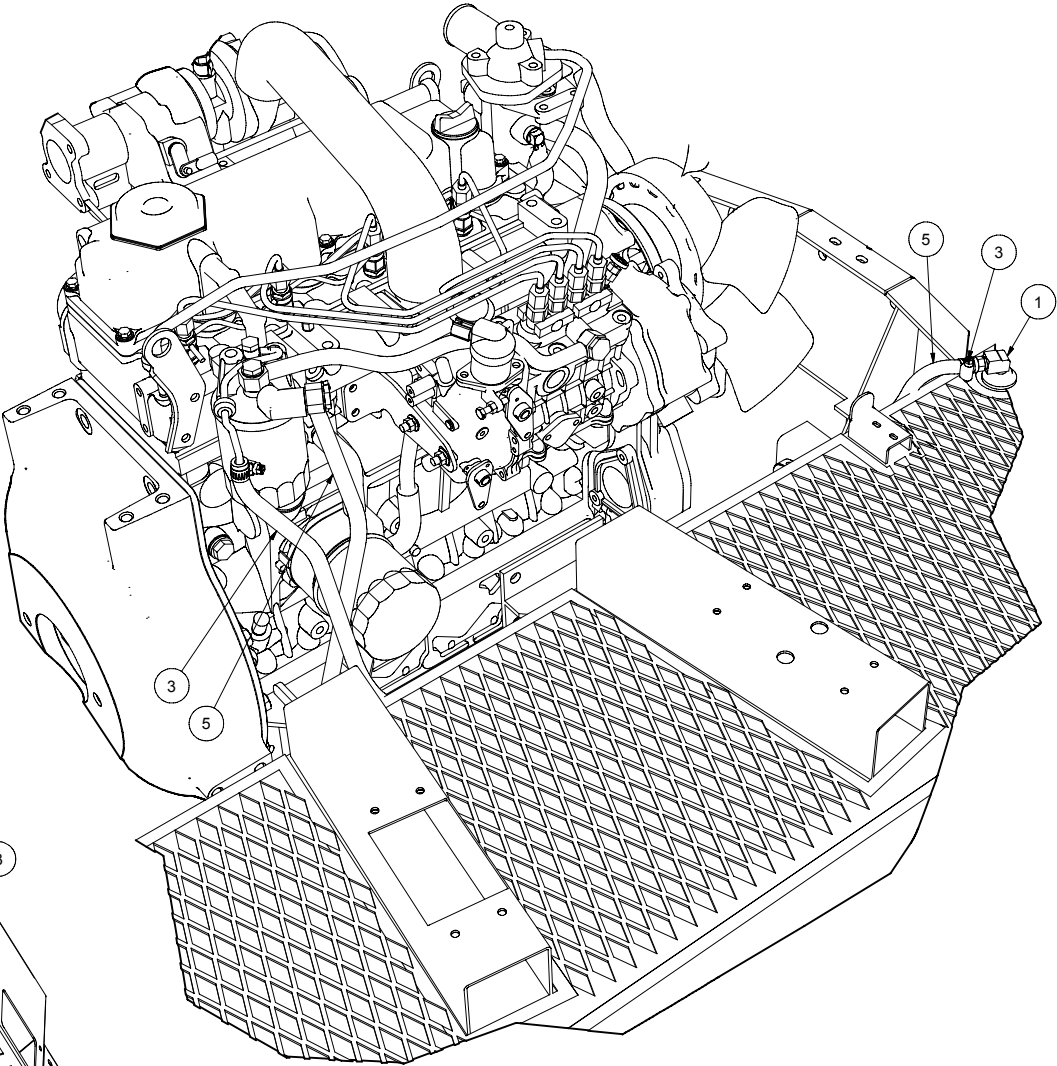
Parts List			
ITEM	PART #	DESCRIPTION	QTY
1A	012702	TIP, 80°x0.10 GPM BRASS SPRAY	1
2A	041604	BODY, NYLON CHECK VALVE NOZ	1
3A	041606	NIPPLE, 1/4 NPT CLOSE PLASTIC	1
4A	041624	RETAINER, NYLON SPRAY TIP	1
5A	047579	STRAINER, POLY 100 µ MESH	1




REAR VIEW

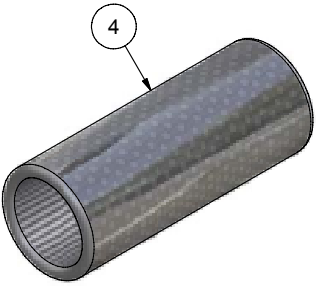
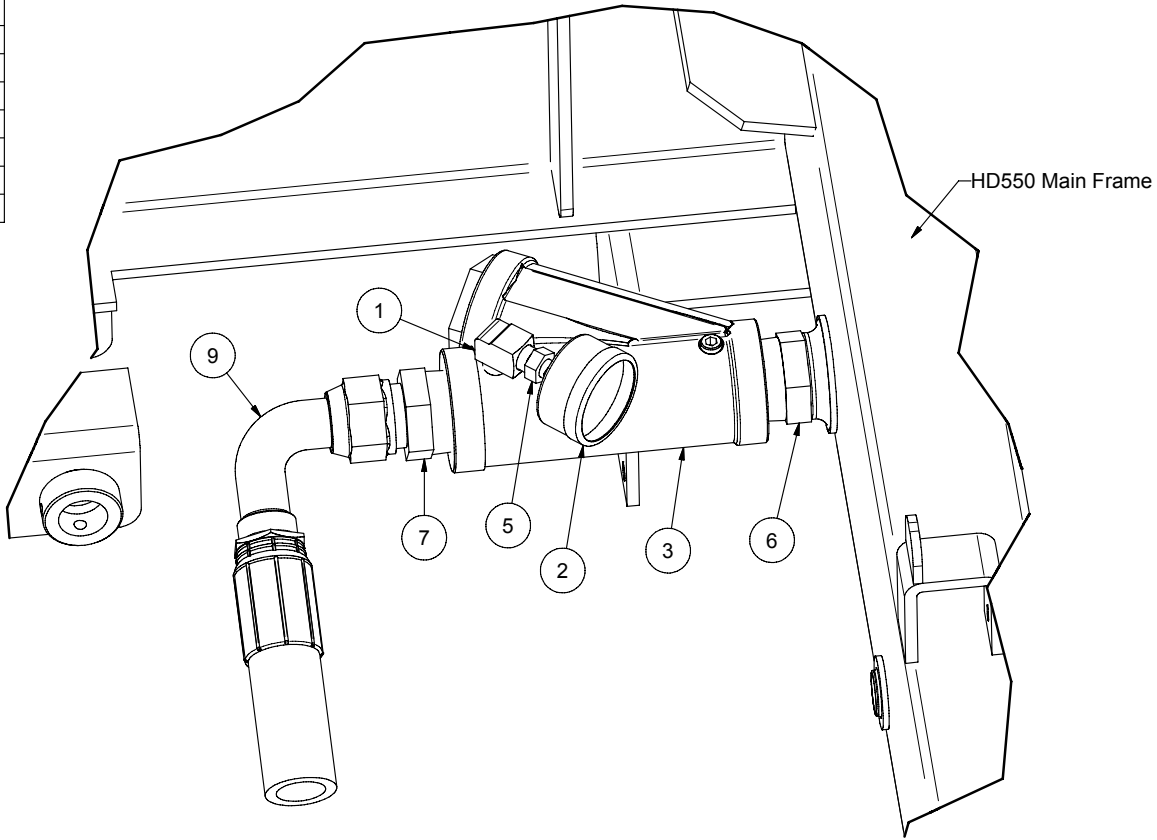
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 <small>ALLEN ENGINEERING CORPORATION P.O. BOX 819 PARAGOULD, AR 72451</small>		TITLE: Spray System Assembly HD550C Riding Trowel	
		MATERIAL: SEE Parts Lists	
1-PLACE DEC: 2-PLACE DEC: 3-PLACE DEC:	ANLR: FRAC: DATE:	MACHINE SURFACE TEXTURE:	PROJECT NUMBER: C
DRAWN BY: AW	11/1/06	PART NUMBER: 550-MA09	REVISION: 2
CHECKED BY:	SCALE:	NEXT ASSEMBLY:	RECD: WEIGHT: LBS:


Parts List			
ITEM	PART #	DESCRIPTION	QTY
1	010220	ELBOW 1/4 X 1/4 90 DEG STREET	1
2	019429	HOSE, 5/16" FUEL LINE	7.75'
3	019430	FSTN, CLAMP SIZE #4 MINI HOSE	8
4	020542	FSTN, NUT STOVER LOCK 1/4-20	2
5	039155	HOSE, 1/4" FUEL LINE	3'
6	040030	HOSE BARB FITTING, 1/4" X 1/8"	2
7	040389	CLIP, 1 3/4" WIRE LOOM	1
8	043920	FILTER, IN-LINE DIESEL	1
9	043922	PUMP, ELECTRIC FUEL F/HD 550	1



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 allen ENGINEERING CORPORATION P.O. BOX 819 PARAGOULD, AR 72451		TITLE: Fuel System Assembly HD550 Riding Trowels	
		MATERIAL: SEE BOM	
1-PLACE DEC: 2-PLACE DEC: 3-PLACE DEC:	ANLR: FRAC: DATE	MACHINE SURFACE TEXTURE	PROJECT NUMBER: C
DRAWN BY: AW 4/27/06		PART NUMBER: 550-MA08	REVISION: 2
CHECKED BY:		SCALE:	NEXT ASSEMBLY:

Parts List			
ITEM	PART #	DESCRIPTION	QTY
1	010220	ELBOW 1/4 X 1/4 90 DEG STREET	1
2	046369	GV-5 SUCTION GAUGE	1
3	046472	Y-STRAINER	1
4	046473	FILTER, REPLACEMENT	1
5	046474	ADAPTER, 4MP-2FPS (G60130-0402)	1
6	046479	FTG, F6401-16-20 W/ O-RING	1
7	046497	FTG, F2404-16-20	1
8	046498	FTG, F6400-16-16 (NOT SHOWN)	2
9	046500	HOSE, Y-STRAINER SUCTION/RETURN	2

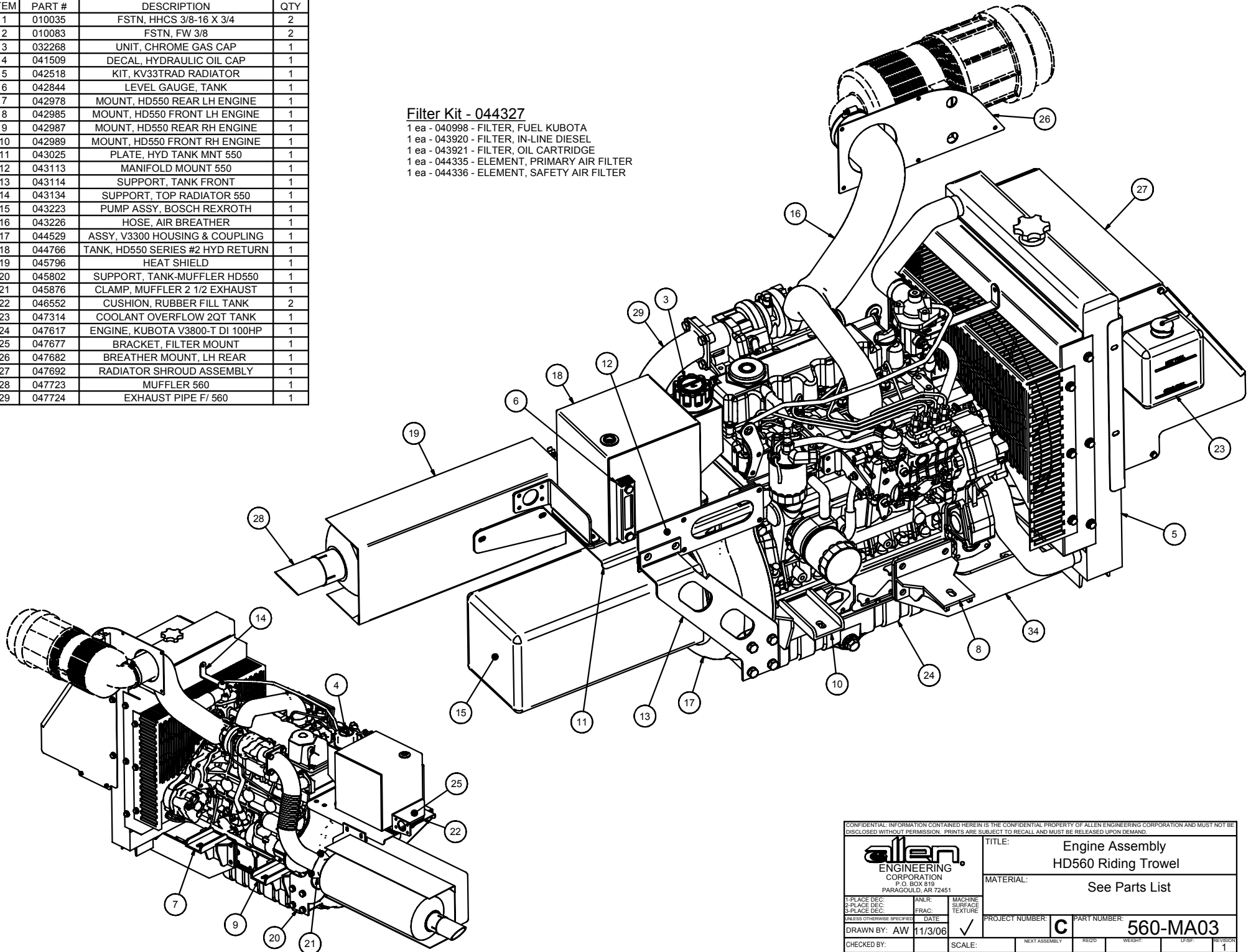



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 allen ENGINEERING CORPORATION P.O. BOX 819 PARAGOULD, AR 72451			TITLE: Y-Strainer Assembly HD550 Riding Trowels		
			MATERIAL: SEE Parts List		
1-PLACE DEC:	ANLR:	MACHINE SURFACE TEXTURE	PROJECT NUMBER: B	PART NUMBER: 550-MA06	
2-PLACE DEC:	FRAC:				
3-PLACE DEC:	DATE	✓			
UNLESS OTHERWISE SPECIFIED					
DRAWN BY: AW 4/20/06					
CHECKED BY:		SCALE:	NEXT ASSEMBLY	REQ'D	WEIGHT:
				LF/SF:	REVISION: 1

Parts List			
ITEM	PART #	DESCRIPTION	QTY
1	010035	FSTN, HHCS 3/8-16 X 3/4	2
2	010083	FSTN, FW 3/8	2
3	032268	UNIT, CHROME GAS CAP	1
4	041509	DECAL, HYDRAULIC OIL CAP	1
5	042518	KIT, KV33TRAD RADIATOR	1
6	042844	LEVEL GAUGE, TANK	1
7	042978	MOUNT, HD550 REAR LH ENGINE	1
8	042985	MOUNT, HD550 FRONT LH ENGINE	1
9	042987	MOUNT, HD550 REAR RH ENGINE	1
10	042989	MOUNT, HD550 FRONT RH ENGINE	1
11	043025	PLATE, HYD TANK MNT 550	1
12	043113	MANIFOLD MOUNT 550	1
13	043114	SUPPORT, TANK FRONT	1
14	043134	SUPPORT, TOP RADIATOR 550	1
15	043223	PUMP ASSY, BOSCH REXROTH	1
16	043226	HOSE, AIR BREATHER	1
17	044529	ASSY, V3300 HOUSING & COUPLING	1
18	044766	TANK, HD550 SERIES #2 HYD RETURN	1
19	045796	HEAT SHIELD	1
20	045802	SUPPORT, TANK-MUFFLER HD550	1
21	045876	CLAMP, MUFFLER 2 1/2 EXHAUST	1
22	046552	CUSHION, RUBBER FILL TANK	2
23	047314	COOLANT OVERFLOW 2QT TANK	1
24	047617	ENGINE, KUBOTA V3800-T DI 100HP	1
25	047677	BRACKET, FILTER MOUNT	1
26	047682	BREATHER MOUNT, LH REAR	1
27	047692	RADIATOR SHROUD ASSEMBLY	1
28	047723	MUFFLER 560	1
29	047724	EXHAUST PIPE F/ 560	1

Filter Kit - 044327

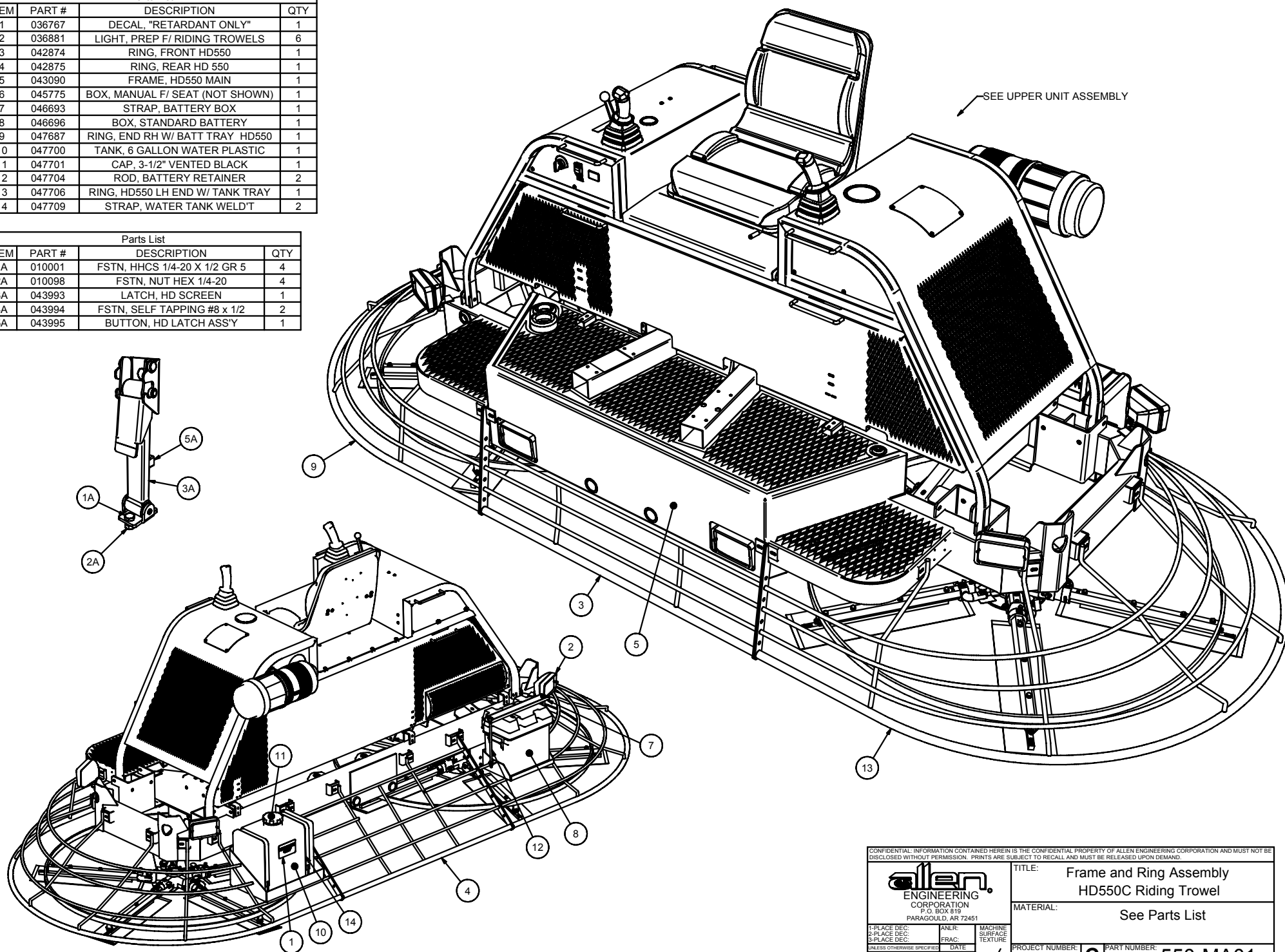
1 ea - 040998 - FILTER, FUEL KUBOTA
 1 ea - 043920 - FILTER, IN-LINE DIESEL
 1 ea - 043921 - FILTER, OIL CARTRIDGE
 1 ea - 044335 - ELEMENT, PRIMARY AIR FILTER
 1 ea - 044336 - ELEMENT, SAFETY AIR FILTER




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		TITLE: Engine Assembly HD560 Riding Trowel	
P.O. BOX 819 PARAGOULD, AR 72451		MATERIAL: See Parts List	
1-PLACE DEC. 2-PLACE DEC. 3-PLACE DEC.	ANLR FRAC. DATE	MACHINE SURFACE TEXTURE	PROJECT NUMBER: C
UNLESS OTHERWISE SPECIFIED	DATE	CHECKED BY: AW	PART NUMBER: 560-MA03
DRAWN BY:	11/3/06	SCALE:	NEXT ASSEMBLY:
CHECKED BY:	SCALE:	RECD:	WEIGHT:
1	1	1	1

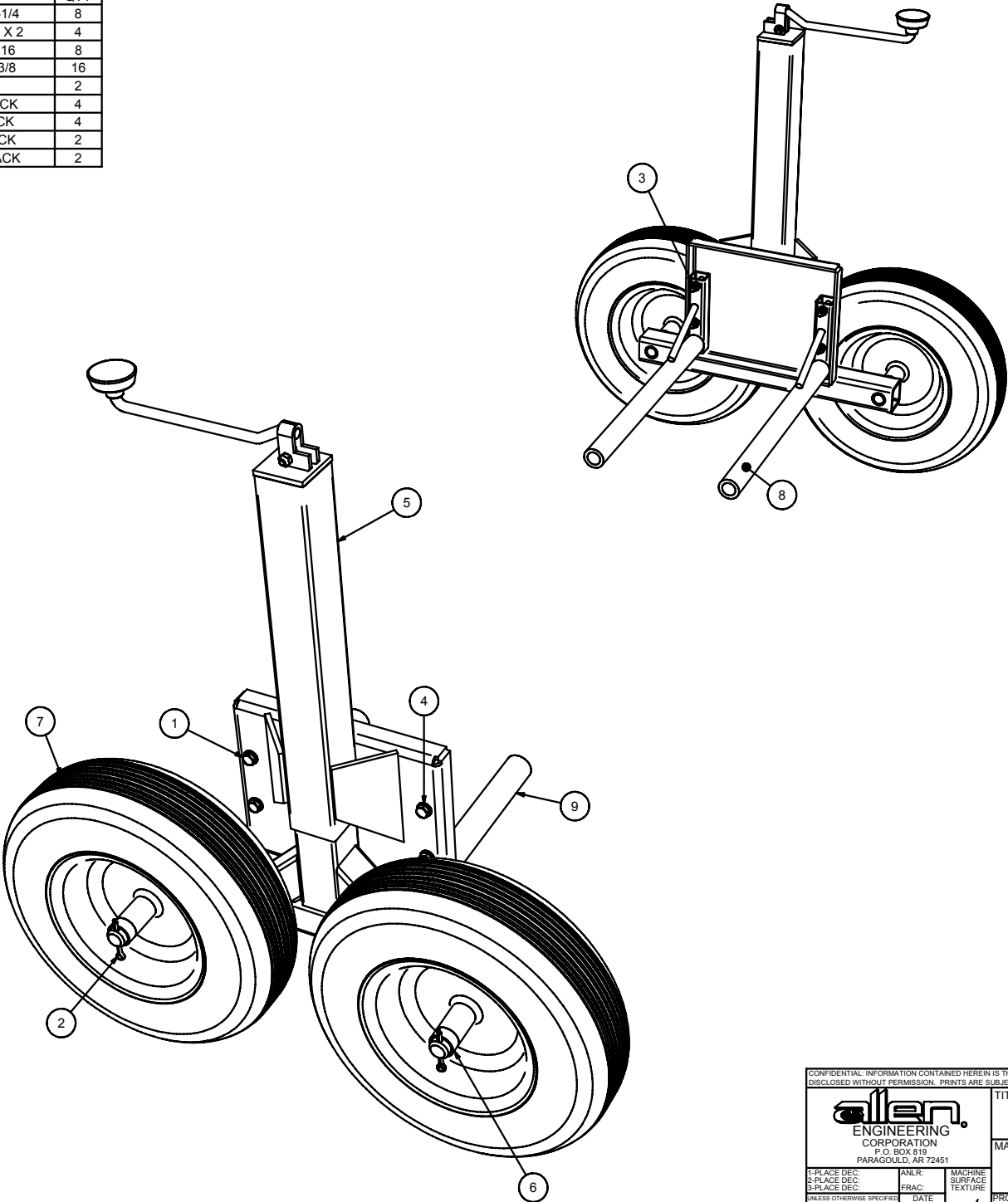
Parts List			
ITEM	PART #	DESCRIPTION	QTY
1	036767	DECAL, "RETARDANT ONLY"	1
2	036881	LIGHT, PREP F/ RIDING TROWELS	6
3	042874	RING, FRONT HD550	1
4	042875	RING, REAR HD 550	1
5	043090	FRAME, HD550 MAIN	1
6	045775	BOX, MANUAL F/ SEAT (NOT SHOWN)	1
7	046693	STRAP, BATTERY BOX	1
8	046696	BOX, STANDARD BATTERY	1
9	047687	RING, END RH W/ BATT TRAY HD550	1
10	047700	TANK, 6 GALLON WATER PLASTIC	1
11	047701	CAP, 3-1/2" VENTED BLACK	1
12	047704	ROD, BATTERY RETAINER	2
13	047706	RING, HD550 LH END W/ TANK TRAY	1
14	047709	STRAP, WATER TANK WELD'T	2


Parts List			
ITEM	PART #	DESCRIPTION	QTY
1A	010001	FSTN, HHCS 1/4-20 X 1/2 GR 5	4
2A	010098	FSTN, NUT HEX 1/4-20	4
3A	043993	LATCH, HD SCREEN	1
4A	043994	FSTN, SELF TAPPING #8 x 1/2	2
5A	043995	BUTTON, HD LATCH ASS'Y	1



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 P.O. BOX 819 PARAGOULD, AR 72451		TITLE: Frame and Ring Assembly HD550C Riding Trowel	
		MATERIAL: See Parts List	
1-PLACE DEC: 2-PLACE DEC: 3-PLACE DEC: UNLESS OTHERWISE SPECIFIED		ANLR: FRAC: DATE	MACHINE: SURFACE: TEXTURE: <input checked="" type="checkbox"/>
DRAWN BY: AW		11/2/06	PROJECT NUMBER: C
CHECKED BY:		SCALE:	PART NUMBER: 550-MA01 RECD: _____ WEIGHT: _____ 1/2" = _____ REVISION: 2

Parts List			
ITEM	PART #	DESCRIPTION	QTY
1	010041	FSTN, HHCS 3/8-16 X 2-1/4	8
2	010133	FSTN, PIN COTTER 3/16 X 2	4
3	010464	FSTN, NUT NYLOK 3/8-16	8
4	017751	FSTN, FW HARD A325 3/8	16
5	039091	SP DOLLY JACK	2
6	039094	SPACER, SP DOLLY JACK	4
7	039095	WHEEL, SP DOLLY JACK	4
8	040352	TUBE REAR DOLLY JACK	2
9	040661	TUBE FRONT DOLLY JACK	2



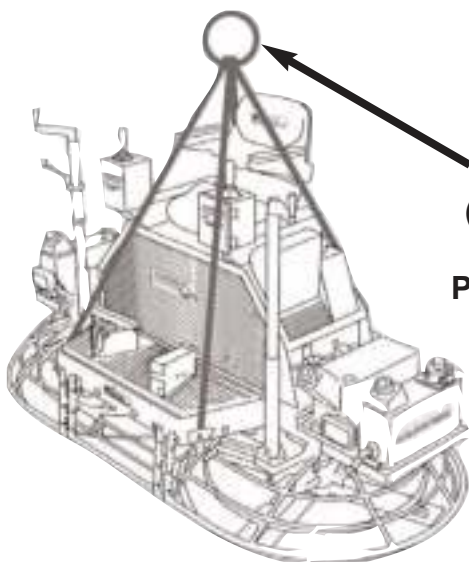
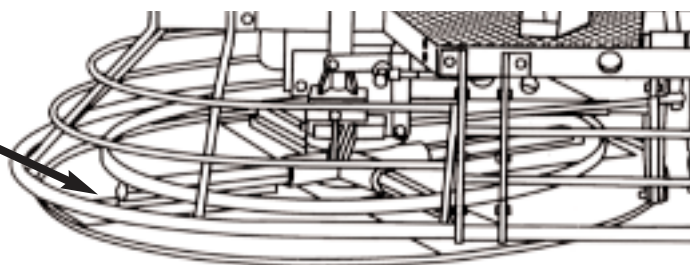
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 allen. ENGINEERING CORPORATION P.O. BOX 819 PARAGOULD, AR 72451		TITLE: Dolly Jacks, Set for HD550 HD550 Riding Trowel	
		MATERIAL: SEE BOM	
1-PLACE DEC: 2-PLACE DEC: 3-PLACE DEC:	ANLR: FRAC: DATE:	MACHINE: SURFACE: TEXTURE:	PROJECT NUMBER: C
DRAWN BY: AW	11/1/06	<input checked="" type="checkbox"/>	PART NUMBER: 550-MA12
CHECKED BY:	SCALE:	NEXT ASSEMBLY:	REGRD: WEIGHT: LBS: REVISION: 2

2A PARTS

ACCESSORIES

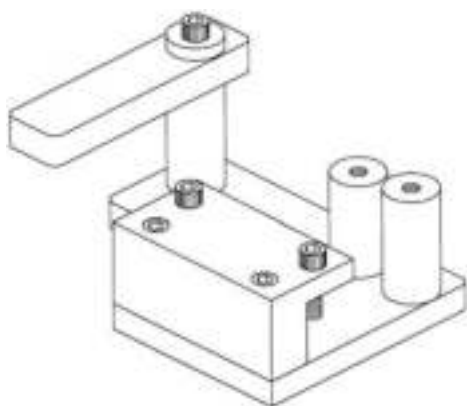
FLOATING PANS

STANDARD PAN #: 047124
SAFETY CATCH PAN #: 047133
COMPODISK PAN #: 046298

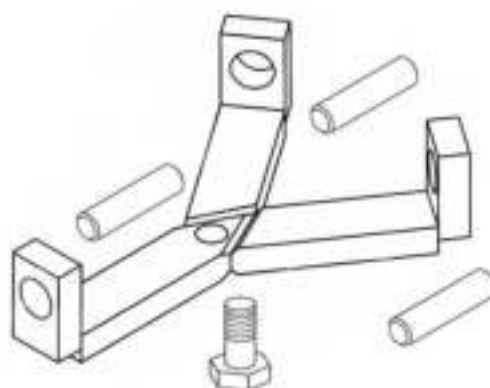


LIFTING BRIDLE (SLING TYPE)

PART #: 040041



TROWEL ARM ALIGNMENT JIG PART #016863



SPIDER PULLER KIT PART #040906

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