PARTS AND OPERATION MANUAL

WHITEMAN

STH-SERIES
RIDE-ON POWER TROWEL

Revision #5 (06/08/05)

MULTIQUIP

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⚠ 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.

HERE'S HOW TO GET HELP

PLEASE HAVE THE MODEL AND SERIAL NUMBER ON-HAND WHEN CALLING

PARTS DEPARTMENT
800-427-1244 or 310-537-3700
FAX: 800-672-7877 or 310-637-3284

SERVICE DEPARTMENT/TECHNICAL ASSISTANCE
800-478-1244 or 310-537-3700
FAX: 310- 537-4259

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888-661-4279, or 310-661-4279
FAX: 310- 537-1173

MAIN
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WHITEMAN — STH

NOTE: Specification and part number are subject to change without notice.

- **Dealer account number**
- **Dealer name and address**
- **Shipping address (if different than billing address)**
- **Return fax number**
- **Applicable model number**
- **Quantity, part number and description of each part**
- **Specify preferred method of shipment:**
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Extra Fax Discount for Domestic USA Dealers Only

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Get special freight allowances when you order 10 or more line items via FAX!**

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TRAINING CHECKLIST

This checklist will lists some of the minimum requirements for machine maintenance and operation. Please feel free to detach it and make copies. Use this checklist whenever a new operator is to be trained or it can be used as a review for more experienced operator's.

TRAINING CHECKLIST			
NO.	**DESCRIPTION**	**OK?**	**DATE**
1	Read Operator's Manual completely.		
2	Machine layout, location of components, checking of engine and hydraulic oil levels.		
3	Fuel system, refueling procedure		
4	Operation of spray and lights.		
5	Operation of controls (machine not running).		
6	Safety controls, seat kill switch operation.		
7	Emergency stop procedures.		
8	Startup of machine, pre-heat (John Deere diesel).		
9	Maintaining a hover.		
10	Maneuvering		
11	Pitching		
12	Matching blade pitch. Twin Pitch™.		
13	Concrete finishing techniques.		
14	Shutdown of machine.		
15	Lifting of machine (lift loops).		
16	Machine transport and storage.		

Operator _____ Trainee _____

COMMENTS:

DAILY PRE-OPERATION CHECKLIST

DAILY PRE-OPERATION CHECKLIST	
1	Engine oil level.
2	Hydraulic oil level.
3	Radiator coolant level.
4	Condition of blades.
5	Blade pitch operation.
6	Kill switch (seat) operation.
7	Steering control operation.

COMMENTS:

RULES FOR SAFE OPERATION

CAUTION

Failure to follow instructions in this manual may lead to serious injury or even death! This equipment is to be operated by trained and qualified personnel only! This equipment is for industrial use only and should not be regarded as a toy.

The following safety guidelines should always be used when operating the STH Ride-on Power Trowel:

GENERAL SAFETY

- **DO NOT** operate or service this equipment before reading this entire manual.
- This equipment should not be operated by persons under 18 years of age.
- **DO NOT** operate this equipment unless all guards and safety devices are attached and in place.
- Always use proper heavy lifting techniques when moving equipment. This ride-on trowel is very heavy. It should be lifted only with a lifting device (i.e. crane, forklift, etc.) with a lifting capacity of at least one ton.
- Always check to make sure that the operating area is clear before starting the engine.
- Always test the safety kill switch before operating the equipment.
- **NEVER** place your feet inside the guard rings while starting or operating this equipment.
- **NEVER** operate this equipment without proper protective clothing, shatterproof glasses, steel-toed boots and other protective devices required by the job. Avoid wearing jewelry or loose fitting clothing that may snag on the controls or moving parts, this can cause a serious injury.
- Always keep clear of rotating or moving parts while operating this equipment.
- **NEVER** leave the machine **unattended** while running.
- Always refuel in a well-ventilated area, away from sparks and open flames.
- Always use extreme caution when working with **flammable** liquids. When refueling, **stop the** engine and allow it to cool. **DO NOT** smoke around or near the machine. Fire or explosion could result from flames or sparks, or if fuel is spilled on a hot engine.
- **Moving Parts** - Shut down the engine before performing service or maintenance functions. Contact with moving parts can cause serious injury.

- **High Temperatures** – Allow the machine and engine to cool before adding fuel or performing service and maintenance functions. Contact with *hot* components can cause serious burns.

Emergencies

- Always know the location of the nearest ***fire extinguisher*** and ***first aid kit.*** Know the location of the nearest telephone. Also know the phone numbers of the nearest ***ambulance***, ***doctor*** and ***fire department***. This information will be invaluable in the case of an emergency.

Maintenance Safety

- Disconnect the battery and spark plug wires before attempting any type of service.
- Securely support any machine components that must be raised.
- **NEVER** lubricate components or attempt service on a running machine.
- Always allow the machine a proper amount of time to cool before servicing.
- Keep the machinery in proper running condition.
- Make sure that there is no buildup of concrete, grease, oil or debris on the machine.
- Fix damage to the machine immediately and always replace broken parts.
- Dispose of hazardous waste properly. Examples of potentially hazardous waste are used motor oil, fuel and fuel filters.
- **DO NOT** use food or plastic containers to dispose of hazardous waste.
- **DO NOT** pour waste, oil or fuel directly onto the ground, down a drain or into any water source.

Machine Safety Decals

The STH series Ride-on Power Trowel is equipped with a number of safety decals. These decals are provided for operator safety and maintenance information. Table 1 (Page 7) illustrates these decals as they appear on the machine. Should any of these decals become unreadable, replacements can be obtained from your dealer.

Moving the Ride-On Trowel

CAUTION

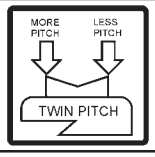
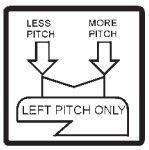
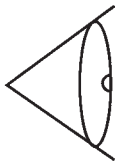
This ride-on trowel is very ***heavy*** and awkward to move around. Use proper heavy lifting procedures and **DO NOT** attempt to lift the ride-on trowel by the guard rings.

The STH series Ride-on Power Trowel is designed to be moved and handled several ways. The easiest way to lift the ride-on trowel is to utilize the lift loops that are welded to the frame. These lift loops are located to the left and right sides of the operator's seat (Figure 3, Page 11).

A strap or chain can be attached to these lift loops, allowing a forklift or crane to lift the ride-on trowel up onto a slab of concrete. The strap or chain should have a minimum 2,000 pounds (1000-kg) lifting capacity and the lifting gear must be capable of lifting at least this amount.

Table 1 below defines and illustrates the various safety decals used on the ride-on trowel:

Table 1. STH Safety & Operating Decals

	Symbol for **CAUTION**. When this symbol is displayed in the manual or on the machine be aware that there is a potential for personal injury or damage to the equipment. Always follow instructions for safe operation and use.		Symbol indicates twin pitch activation. **P/N 12248** **(Part of decal kit 12620)**
	Symbol indicates that it is mandatory to wear safety glasses, safety helmet and ear protection. **P/N 11247** **(Part of decal kit 12620)**		Symbol indicates left side pitch activation. **P/N 12249** **(Part of decal kit 12620)**
	Symbol indicates that it is mandatory to wear gloves. **P/N 11247** **(Part of decal kit 12620)**		Symbol indicates that it is mandatory to wear safety shoes, with extra protection (steel toed). **P/N 11247** **(Part of decal kit 12620)**
	Radiating heat symbol. Symbol indicates equipment is hot. **P/N 11246** **(Part of decal kit 12620)**		Lubrication symbol. Know that wherever you see this symbol on the machine, a lubrication point will be called out. **P/N 11246** **(Part of decal kit 12620)**
	Symbol for examining or checking of the machine. Mostly used for maintenance. **P/N 11246** **(Part of decal kit 12620)**		Symbol indicates that hydraulic fluid inside reservoir is pressurized. **P/N 12401** **(Part of decal kit 12620)**
	Lift point symbol. Symbol indicates where machine should be lifted. **P/N 11246** **(Part of decal kit 12620)**		

Note:
See page 57 for addintional decal information.

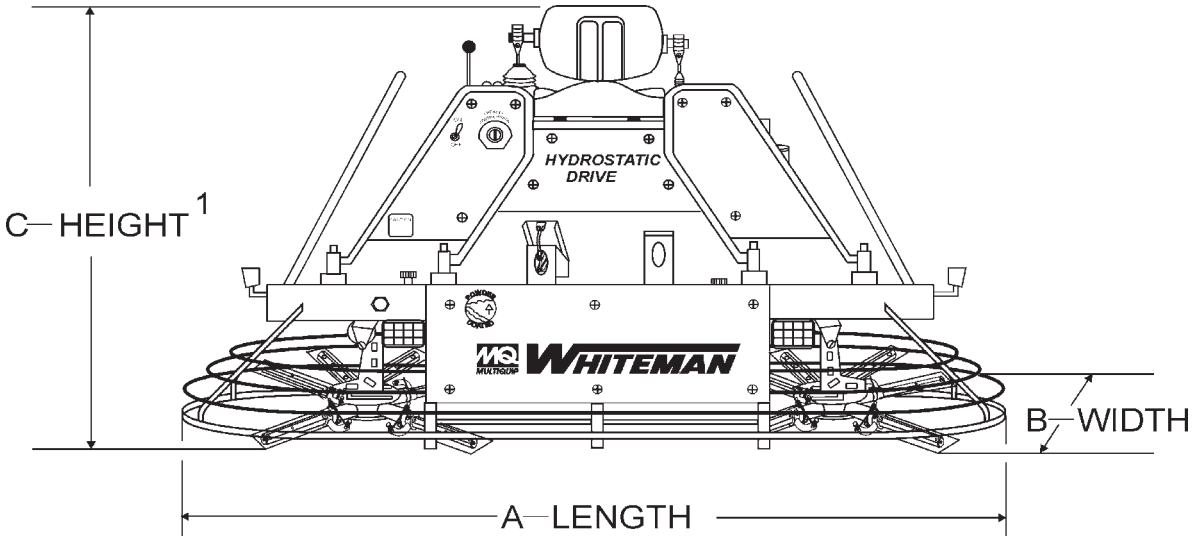


Figure 1. STH Dimension Specifications

Table 2. STH Specifications

SPECIFICATION PARAMETER	STH-55JD-TCSL
A–Length – in. (cm)	125 (318)
B–Width – in. (cm)	65.0 (165)
C–Height – in. (cm)[1]	56.0 (142)
Weight – lbs. (kgs.) Operating	2,230 (1014)
Weight – lbs. (kgs.) Shipping	2730 (1241)
Sound Pressure – dBA[2]	97
Vibration – ft/s^2 (m/ s^2)[3]	<8.0 (2.5)
Blade Tip Speed – FPM (m/s)	1924 (9.9)
Engine – H.P.	55 (John Deere, Diesel Turbocharge)
Fuel Tank – gallons (liters)	12 (45)
Rotor – RPM	0 to 130
Path Width – in. (cm)	117 (297)
Hydraulic Oil[4]	AW MV 68 or 10W-40 (hot weather) or 10W-30 (cold weather)

NOTE:

1. This value includes the seat height.
2. Sound pressure is "A" weighted . Measured at the operators ear position while the ride-on trowel is operating at full throttle on concrete in a manner most often experienced in "***normal***" circumstances. Sound pressure may vary depending upon the condition of the concrete. Hearing protection is always recommended.
3. The vibration level indicated is the maximum RMS (Root Mean Square) value obtained at the handle grip while operating the ride-on trowel on curing concrete in a manner most often experienced in "***normal***" circumstances. Values were obtained from all three axes of motion. The values shown represent the maximum RMS value from these measurements.
4. "AW" stands for ***anti-wear*** and "MV" stands for ***multi-viscosity***. The 68 refers to the general viscosity range and is similar to 10W40-engine oil (hot weather) and 10W30 (cool weather).

STH RIDE-ON TROWEL FAMILIARIZATION

The STH series Ride-On Power Trowels are designed for the floating and finishing of concrete slabs.

Take a walk around the STH Ride-On Power Trowel. Take notice of all the entire major components (see Figures 2 and 3, Page 11) like the engine, blades, air cleaner, ignition switch etc. Check that there is always oil in the engine, and hydraulic oil in the hydraulic oil reservoir.

Read all the safety instructions carefully. Safety instructions will be found throughout this manual and on the machine. Keep all safety information in good, readable condition. Operators should be well trained on the operation and maintenance of the STH Ride-On Power Trowel.

Before using your STH Ride-On Power Trowel, test it on a flat watered down section of finished concrete. This trial test run will increase your confidence in using the trowel and at the same time it will familiarize you with the trowel's controls and indicators. In addition you will understand how the trowel will handle under actual conditions.

Engine

The STH Ride-On Power Trowel is available with a standard 55 HP John Deere diesel engine. Refer to the engine owner's manual for specific instructions regarding engine operation. This manual is included with the ride-on trowel at the time of shipping from Whiteman. Please contact your nearest Multiquip Dealer for a replacement should the original manual disappear.

Blades

The blades of the ride-on power trowel finish the concrete as they are swirled around the surface. Blades are classified as combination (10 or 8 inches wide), finish (6 inches wide). The STH is equipped with six blades per rotor equally spaced in a radial pattern and attached to vertical rotating shaft by means of a ***spider assembly***.

Hydraulic Motor

Independent hydraulic drive motors are coupled to the engine-powered hydrostatic pumps. Each motor drives a spider assembly.

Hydraulic Steering

Dual joystick controls located to the left and right of the operator are provided for steering the STH-Ride on Power Trowel. The joysticks are linked to three hydraulic steering cylinders located within the frame of the machine. When the right side steering joystick is moved either forward or backward it will cause the right side of the ride-on power trowel to move in either a forward or reverse direction. Moving the same joystick left or right causes the trowel to move in either the left or right direction.

When the left side steering joystick is moved, it will cause the left side of the ride-on trowel to travel in either a forward or reverse direction.

Hydraulic Pump

Delivers a continuous controlled flow of hydraulic fluid to the hydraulic motors.

Training

For proper training, please use the "**TRAINING CHECKLIST**" located in the front of this manual (Page A). This checklist will provide an outline for an experienced operator to provide training to a new operator.

STH-55JD-TC — CONTROLS AND INDICATORS

Figures 2 and 3 show the location of the controls, indicators and general maintenance parts. Each control may perform more than one function. All functions of each control are described below.

1. **Seat –** Place for operator to sit. Engine will not start unless operator is seated. Seat is adjustable for operator comfort.
2. **Steering Control (right side)** -Allows the unit to move in either a forward, reverse left or right direction.
3. **Throttle Control Lever –** Controls the speed of the engine. Move the hand lever forward to increase engine speed (high), backwards to decrease engine speed (low).
4. **Light Switch –** When activated, turns on six halogen lights. Lights offer better visibility when working indoors.
5. **Ignition Switch –** With key inserted turn clockwise to start engine.
6. **Radiator/Filler Cap –** Holds coolant or water necessary to keep engine at a safe operating temperature. Remove this cap to add water or antifreeze
7. **Pre-Heat Indicator Light -** Lights blue during engine start-up. Indicates that engine glow plugs are being pre-heated. Light will go off after approximately 10 seconds.
8. **Charge Indicator Light** - Lights red when electrical system is not charging properly.
9. **Water Indicator Light** - Lights red when water temperature is high.
10. **Oil Indicator Light -** Lights red when oil pressure is low.
11. **Steering Control (left side) -** Allows the trowel to move in a forward or reverse direction only.
12. **Tachometer/Hour Meter -** Indicates engine speed in terms of RPM. Also indicates number of hours machine has been in use.
13. **Oil Gauge -** Indictes engine oil pressure.
14. **Temperature Gauge -** Indicates engine coolant temperature (in degrees faharenheit).
15. **Overflow Bottle -** Supplies water or coolant to the radiator when radiator coolant or water level is low. Fill to indicated level as shown on bottle.
16. **Blade Pitch Control Switch (Twin Pitch) -** When the rocker switch is pressed down and to the left it will cause **more** pitch to be added to <u>both</u> blades. Pressing the rocker switch down and to the right will cause **less** pitch to be added to <u>both</u> blades.

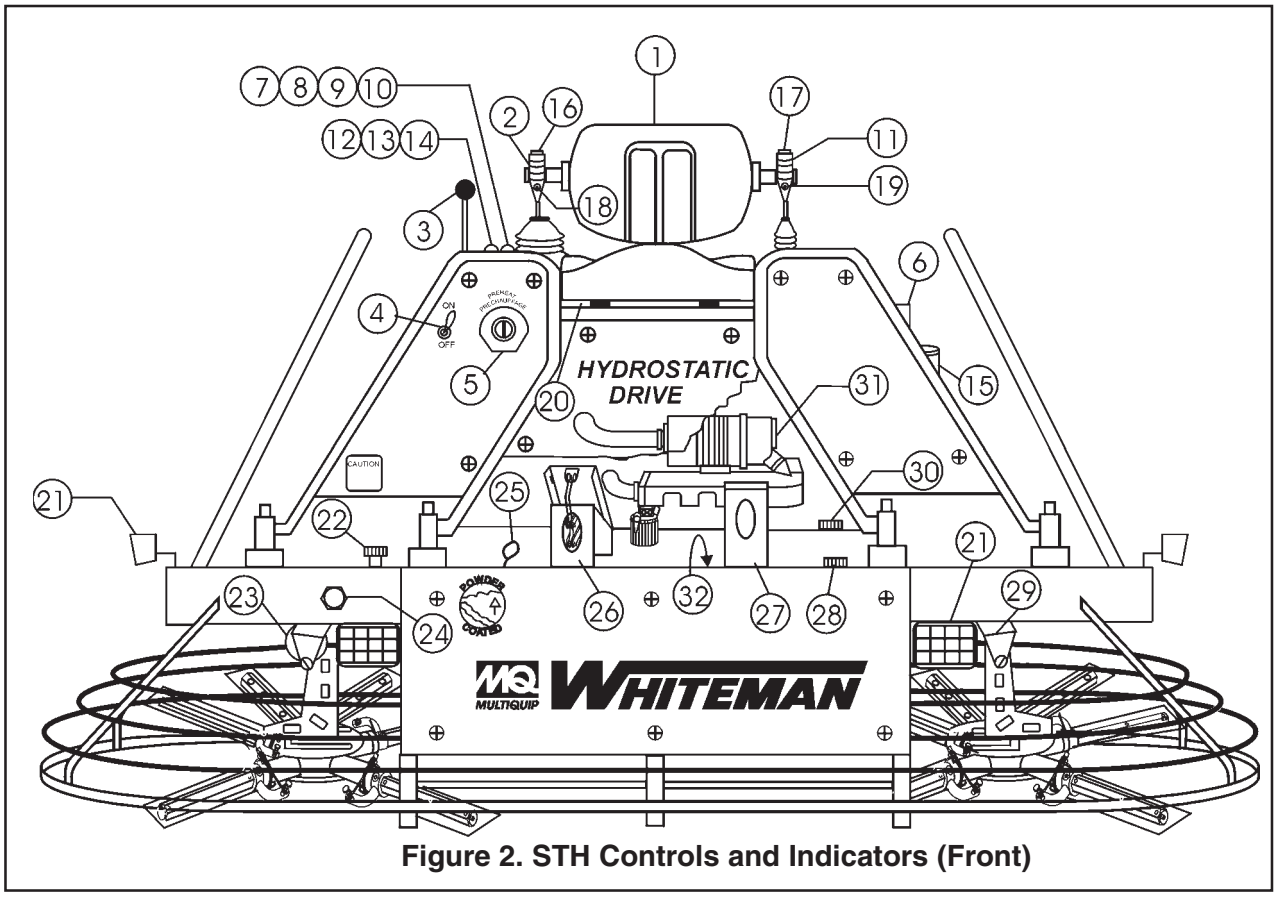


Figure 2. STH Controls and Indicators (Front)

17. **Blade Pitch Control Switch (left side) -** When the rocker switch is pressed down and to the left it will cause **less** pitch to be added to the left side blades only. Pressing the rocker switch down and to the right will cause **more** pitch to be added to the left side blades only. This switch will not effect the right side blades for pitch.
18. **Retardant Spray Control Button (right side) –** When pressed allows retardant spray to flow through the spray nozzle located at the right front of the machine.
19. **Retardant Spray Control Button (left side) –** When pressed allows retardant spray to flow through the spray nozzle located at the left front of the machine.
20. **Kill Switch –** Shuts down engine when operator is not sitting in seat **.**
21. **Lights –** Six Low voltage halogen lights are provided with this unit.
22. **Hydraulic Oil Filler Cap –** Remove this cap to add hydraulic oil.
23. **Hydraulic Suction Filter –** Filters hydraulic fluid prior to pump inlet.
24. **Hydraulic Oil Sight Glass** - Indicates the level of the hydraulic oil in the reservoir.
25. **Engine Dip Stick –** Indicates engine oil level. Add oil as required.
26. **Right Foot Pedal –** Controls blade speed. Slow blade speed is accomplished by slightly depressing the foot pedal. Maximum blade speed is accomplished by fully depressing the foot pedal.
27. **Left Foot Riser** – Operator foot rest pedal.
28. **Fuel Gauge/Filler Cap -** Indicates the amount of fuel in the fuel tank. Remove this cap to add fuel.
29. **Spray Nozzel –** Spray nozzel for retardant. There are two retardant spray nozzels supplied with this unit.
30. **Engine Oil Filler Cap -** Remove this cap to add engine oil.
31. **Air Filter-** Prevents dirt and other debris from entering the engine.
32. **Oil Filter-** Provides oil filtering for the engine.
33. **Lift Loops-** Located on both the left and right sides of the main frame. Used when the trowel must be lifted onto a concrete slab.
34. **Hydraulic Filter -** Filters return oil flow from right hydrostatic motor.
35. **Hydraulic Filter -** Filters return oil flow from left hydrostatic motor.
36. **Retardant Spray Tank -** Holds 5 gallons of retardant
37. **Battery -** Provides +12V DC power to the electrical system
38. **Retardant Spray Motors-** Used in conjunction with the left and right spray control buttons.

NOTE

Read this entire instruction manual completely before attempting to operate this machine.

The following section is intended as a basic guide to the ride-on trowel operation, and is not to be considered a complete guide to concrete finishing. It is strongly suggested that all operators (experienced and novice) read "***Slabs on Grade***" published by the American Concrete Institute, Detroit Michigan.

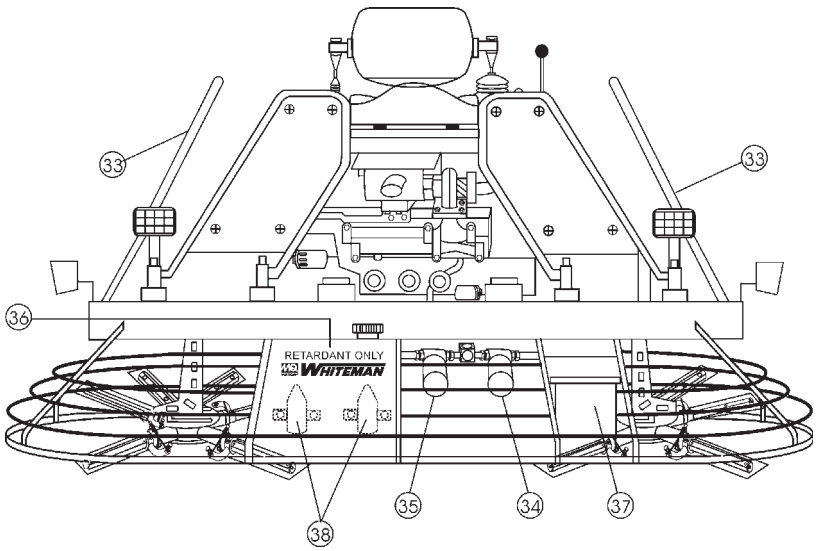


Figure 3. STH Controls and Indicators (Rear)

This section is intended to assist the operator with the initial start-up of the STH series Ride-On Power trowel. It is extremely important that this section be read carefully before attempting to use the trowel in the field.

DO NOT use your ride-on power trowel until this section is throughly understood.

.**CAUTION**

Failure to understand the operation of the STH Ride-ON Power Trowel could result in severe damage to the trowel or personal injuruy.

See Figures 2 and 3 (Pages 11 and 12) for the location of any control or indicator referenced in this manual.

Engine Oil

1. Pull the engine oil dipstick from its holder.
2. Determine if engine oil is low (figure 4), add correct amount of engine oil to bring oil level to a normal safe level.

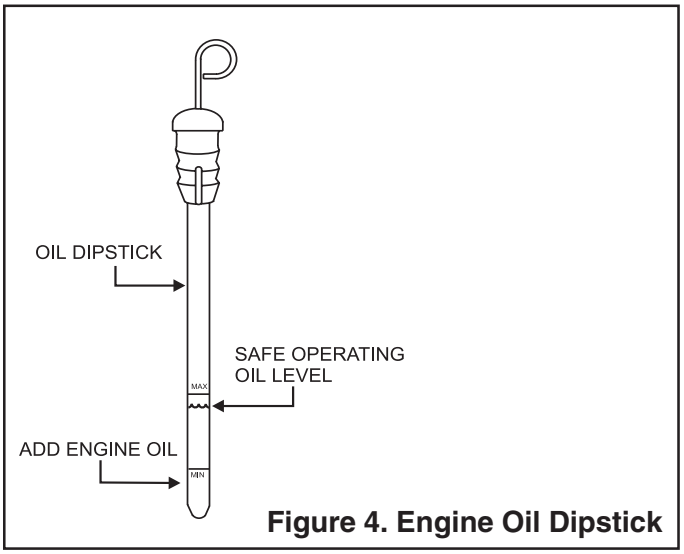


Figure 4. Engine Oil Dipstick

Hydraulic Oil

1. Determine if the hydraulic oil is low by observing the level of oil in the Hydraulic Oil Sight Glass (Figure 5).

NOTE

Proper hydraulic operating oil level is **MIDDLE** of sight glass, with trowel on level surface, and engine off.

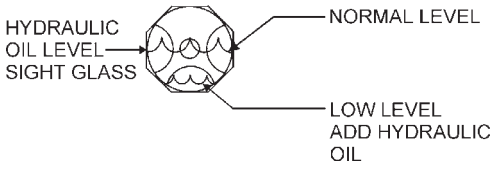


Figure 5. Hydraulic Oil Sight Glass

Fuel

1. Determine if the engine fuel is low (Figure 6). If fuel level is low, remove the fuel filler cap and fill with either diesel fuel or unleaded gasoline depending on the type of engine. Handle fuel safely. Motor fuels are highly flammable and can be dangerous if mishandled. **DO NOT** smoke while refueling. Do not attempt to refuel the ride-on trowel if the engine is hot or running.

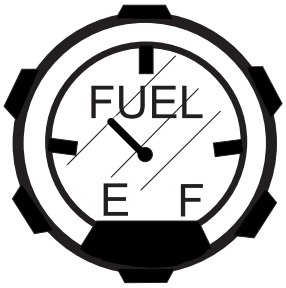


Figure 6. Fuel Gauge

CAUTION

Never store the ride-on trowel with fuel in the tank for any extended period of time. Always clean up spilled fuel immediately.

Starting the Engine

1. With one foot on the ground and the other foot placed on the trowel's platform, grab hold of any part of the frame and lift yourself onto the trowel. Then sit down in the operator's seat.
2. The Whiteman Ride-On Power trowel is equipped with a safety ***kill switch***. This switch is located beneath the seat assembly. Remember the engine will not start unless an operator is sitting in the operator's seat. The weight of an operator depresses an electrical switch, which will allow the engine to start.

CAUTION

NEVER disable or disconnect the kill switch. It is provided for the operators' safety and injury may result if it is disabled, disconnected or improperly maintained.

3. It is recommended that the kill switch be used to stop the engine after every use. Doing this will verify that the switch is working properly and presents no danger to the operator. Remember to turn the key to the "OFF" position after stopping the machine. Not doing so may drain your units' battery.
4. Place the ***engine throttle lever*** *(*Figure 7*)* in the *LOW* position.

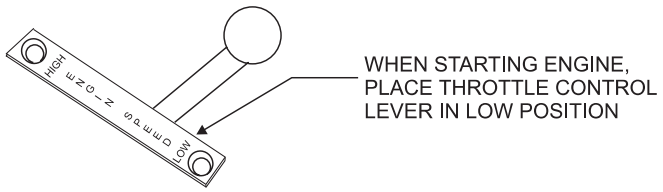


Figure 7. Engine Throttle Control Lever (Low)

5. Insert the ***ignition key*** into the ignition switch (Figure 8).

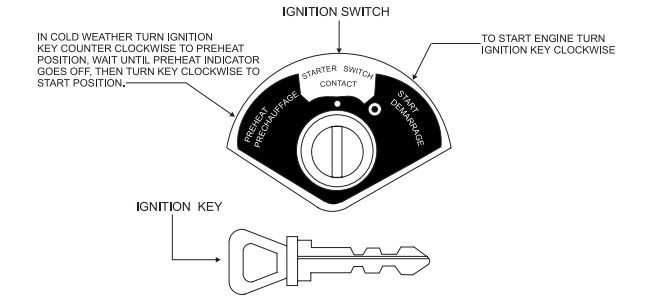


Figure 8. Ignition Switch and Key

6. Turn the ignition key clockwise to the (start) position. The ***oil*** and **charge** indicator lights (Figure 9) should be on.

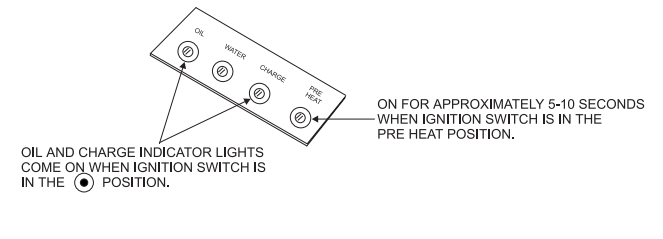


Figure 9. Oil and Charge Indicator Lights

NOTE

In ***cold*** weather turn the ignition key counter clockwise to the preheat position, wait until the **BLUE** preheat indicator goes off before turning the ignition key clockwise to the start position.

7. Turn ignition key fully clockwise and listen for engine to start. Once engine has started release ignition key. Let engine warm for a few minutes.
8. Place the ***engine throttle lever*** (Figure 10) in the *HIGH* position.

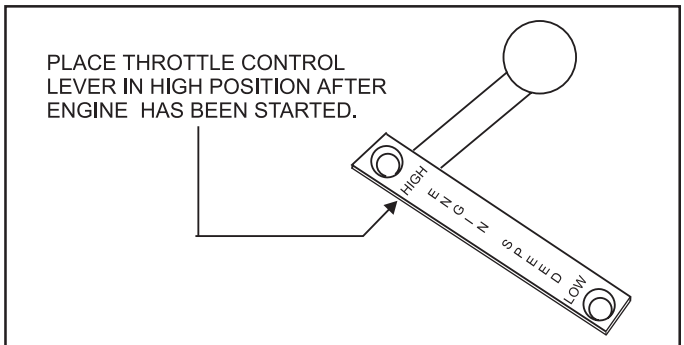


Figure 10. Engine Throttle Control Lever (High)

9. The engine should be running at full RPM.
10. Repeat this section a few times to get fully acquainted with the engine starting procedure.

Steering

Two joysticks (Figure 11) located to the left and right of the operator's seat provide directional control for the HTH Ride-On Power Trowel. Table 3 (Page 15) illustrates the various directional positions of the joysticks and their effect on the ride-on trowel.

NOTE

All directional references with respect to the joysticks are from the ***operator's*** seat position.

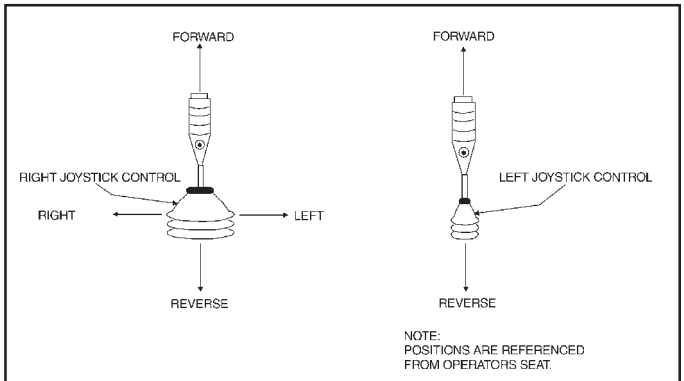


Figure 11. Left and Right Joystick Controls

Table 3 Joystick Directional Positioning		
JOYSTICK	**DIRECTION**	**RESULTS**
Left	Move Joystick Forward	Causes only the left side of the ride-on trowel to move forward.
Left	Move Joystick Backward	Causes only the left side of the ride-on trowel to move backward.
Right	Move Joystick Forward	Causes only the right side of the ride-on trowel to move forward.
Right	Move Joystick Backward	Causes only the right side of the ride-on trowel to move backward.
Left and Right	Move Both Joysticks Forward	Causes the ride-on trowel to move forward in a straight line.
Left and Right	Move Both Joysticks Backward	Causes the ride-on trowel to move backward in a straight line.
Right	Move Joystick Right	Causes the ride-on trowel to move to the right.
Right	Move Joystick Left	Causes the ride-on trowel to move to the left

1. The foot pedal (Figure 12) solely controls blade speed. The position of the foot pedal determines the blade speed. Slow blade speed is obtained by slightly depressing the pedal. Maximum blade speed is obtained by fully depressing the pedal.

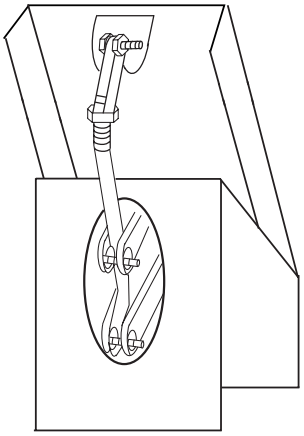


Figure 12. Blade Speed Control Foot Pedal

2. Push both the left and right joysticks forward (Figure 13).
3. With your right foot slowly depress the right foot pedal halfway. Notice that the ride-on power trowel begins to move in a forward direction. Release both joystick controls to stop forward movement then remove your right foot from the right foot pedal.

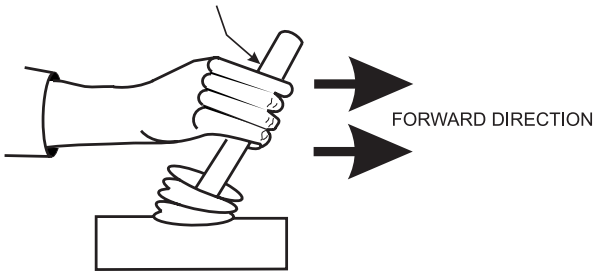


Figure 13. Joystick Control Forward Direction

4. Practice holding the machine in one place as you increase blade speed. When about 75% of maximum blade speed has been reached, the blade will be moving at proper finishing speed. The machine may be difficult to keep in one place. Trying to keep the ride-on trowel stationary is a good practice for operation.
5. Practice maneuvering the ride-on trowel using the information listed in Table 3. Try to practice controlled motions as if you were finishing a slab of concrete. Practice edging and covering a large area
6. Try adjusting the pitch of the blades. This can be done with the ride-on trowel stopped or while the trowel is moving, whatever feels comfortable. Test the operation of optional equipment like retardant spray and lights if equipped.
7. Push both the left and right joysticks backward (Figure 14) and repeat steps 3 through 6 while substituting the word reverse for forward.

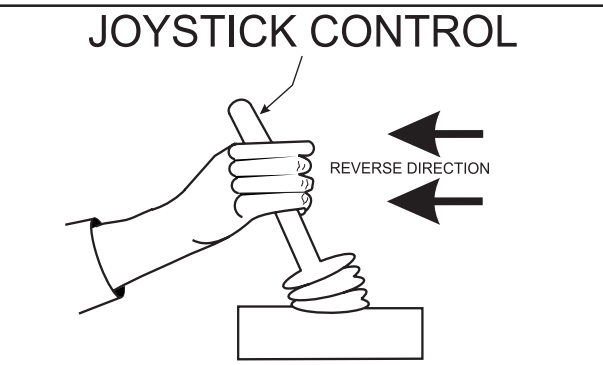


Figure 14. Joystick Control Reverse Direction

NOTE

See the engine manual supplied with your machine for appropriate engine maintenance schedule and troubleshooting guide for problems.

At the front of the book (Page B) there is a "Daily Pre-Operation Checklist". Make copies of this checklist and use it on a daily basis.

CAUTION!

Disconnect spark plug wires and battery cables before attempting any service or maintenance on the ride-on trowel.

MAINTENANCE SCHEDULE

Daily (8-10 Hours)

1. Check the fluid levels in the engine and reservoir, fill as necessary.

Weekly (30-40 Hours)

1. Relube arms, thrust collar and clutch
2. Replace blades if necessary.
3. Check and clean or replace the engine air filter as necessary.
4. Replace engine oil and filter as necessary, see engine manual.

Monthly (100-125 Hours)

1. Remove, clean, reinstall and relube the arms and thrust collar. Adjust the blade arms.

Yearly (500-600 Hours)

1. Check and replace if necessary the arm bushings, and thrust collar bushings.
2. Check pitch control cables for wear.
3. Adjust blade speed.
4. Replace hydraulic fluid and hydraulic filters.

NOTE

After the first 200 hours, ***replace the hydraulic*** filter cartridges.

MAINTENANCE PROCEDURES

Checking/Adjusting Blade Speed

Because the two hydraulic drive motors operate independent of each other, the blade speed between them may vary. If the unit's steering is difficult to control, the blade speeds may need to be checked, or if one spider is spinning noticeably faster or slower than the other, the blade speed may need to be checked. It is also recommended that the blade speed be checked at least once a year.

Blade speed adjustment is a two-step process. First, the left spider's speed should be checked and/or adjusted. Second, the right spider's speed should be adjusted to match the left.

Left Spider Speed Adjustment

The left spider's speed is adjusted by changing the length of the rod end spacing (Figure 15) at the front of the foot pedal. Lengthening the spacing increases the blade speed; shortening the spacing decreases the blade speed.

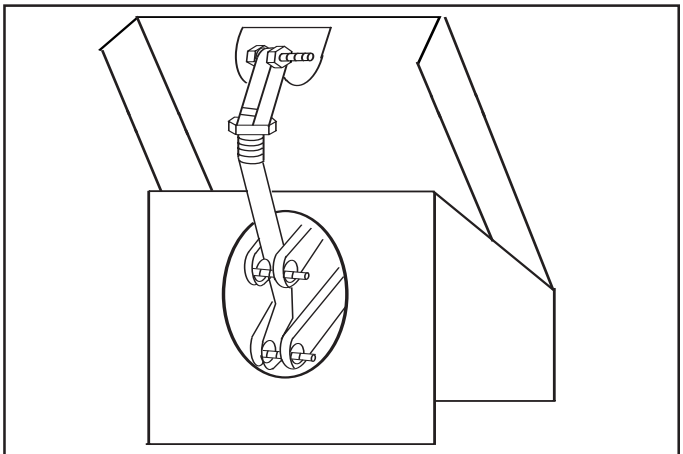


Figure 15. Blade Speed Control Foot Pedal

Right Spider Speed Adjustment

The right spider's speed is adjusted by changing the length of the connecting rod on the pump actuation levers (Figure 16, Page 17). This rod is basically a turnbuckle. Rotating it in one direction increases the length and corresponding spider speed. Rotating it the opposite direction decreases the length and spider speed. The right spider's speed should be within 3 rpm of the left.

A good starting point in the adjustment process is to adjust the rod such that both spiders begin to rotate at the same time when the foot pedal is slowly depressed. This will, generally, get the speeds close enough for use if instrumentation is unavailable (i.e. on the job site). From this point on, some form of instrumentation is required to verify that the right spider speed is within the tolerance specified above. A strobe or magnetic pickup type speed indicator is recommended to verify the speeds.

The speeds should be adjusted on a dry concrete floor with the blades pitched flat. The blade speed should be set at 125-130 rpm with the engine at full speed.

Matching Blade Pitch for Both Sets of Blades

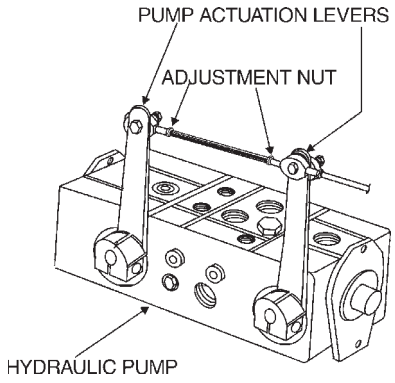


Figure 16. Pump Actuation Levers/Speed Control Rod

Sometimes it may be necessary to match blade pitch between the two sets of blades. There are some signs that this may be necessary. For example, the differences in pitch could cause a noticeable difference in finish quality between the two sets of blades. Or, the difference in blade pitch could make the machine difficult to control. This is due to the surface area in contact with the concrete (the blade set with the greater contact area tends to stick to the concrete more).

Twin Pitch

Trowel blade pitch is controlled by rocker switches located on the top of the left and right joystick handles. The rocker switch on the left handle pitches only the left side blades. The rocker switch on the right handle pitches blades on both the left and right sides.

The left side rocker switch is used to "**match**" blade pitch of the left and right sides. Once the two sides are "matched" (all blades on both sides are completely flat), the right side rocker switch may be used to pitch both sides simultaneously (Twin Pitch).

Important: just as with mechanical Twin Pitch, when using the right side switch, if the blades on either side reach the maximum or minimum pitch condition, both sides will ***stop*** pitching.

If the pitch angle is significantly different between the left and right side blades, they must be "matched" (blades), using the left side rocker switch. Always remember to use the left side rocker switch first when matching the left and right blades. After both left and right side blades have been matched then the right side rocker switch (Twin Pitch) can be used.

Blade Pitch Adjustment Procedure

The maintenance adjustment of blade pitch is an adjustment that is made by a bolt (Figure 17) on the arm of the trowel blade finger. This bolt is the contact point of the trowel arm to the lower wear plate on the thrust collar. The goal of adjustment is to promote consistent blade pitch and finishing quality.

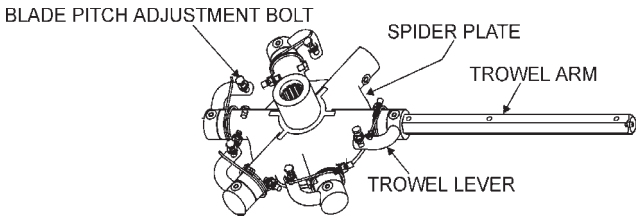


Figure 17. Blade Pitch Adjustment Bolt

There are some things to look for when checking to see if adjustment is necessary. Is the machine wearing out blades unevenly (i.e. one blade is completely worn out while the others look new)? Does the machine have a perceptible rolling or bouncing motion when in use? Look at the machine while it is running, do the guard rings “rock up and down” relative to the ground? Do the pitch control cylinders rock back and forth? These are some of the indications that the blade pitch may need to be adjusted using the adjustment bolts on the trowel blade finger.

The easiest and most consistent way to make this adjustment is to use the Trowel Arm Adjustment Fixture (P.N. 9177) . This fixture will allow consistent adjustment of the trowel arm fingers. It comes with all the hardware necessary to properly accomplish this maintenance and instructions on how to properly utilize this tool. Adjusting the trowel arm fingers without a fixture requires a special talent.

If a trowel arm adjustment fixture is not available and immediate adjustment is necessary; we suggest the following procedure. If you can see or feel which blade is pulling harder, adjust the bolt that corresponds to that blade. Another way to determine which blades need adjustment is to place the machine on a flat surface and pitch the blades as flat as possible. Now, look at the adjustment bolts. They should all barely make contact with the lower wear plate on the spider. If you can see that one of them is not making contact; some adjustment will be necessary.

It will be possible to adjust the "high" bolts down to the level of the one that is not touching, or adjust the "low" bolt up to the level of the higher ones. If possible, adjust the low bolt up to the level of the rest of the bolts. This is the fastest way, but may not always work. Verify that after adjustment, the blades pitch correctly. Often times, if the blades are incorrectly adjusted, they will not be able to pitch flat. This occurs when the adjusting bolts have been raised too high. Conversely, sometimes the adjusting bolts are too low and the blades cannot be pitched high enough for finishing operations.

Changing A Blade

Whiteman recommends that all the blades on the entire machine be changed at the same time. If only one or some of the blades are changed at one time, the machine will not finish concrete consistently and the machine may wobble or bounce.

1. Place the machine on a flat, level surface. Adjust the blade pitch control to make the blades as flat as possible. Note the blade orientation on the trowel arm. This is important for ride-on trowels as the two sets of blades counter-rotate. Lift the machine up, placing blocks under the main guard ring to support it.
2. Remove the bolts and lock washers on the trowel arm, and then remove the blade.
3. Scrape all concrete and debris from the trowel arm. This is important to properly seat the new blade.
4. Install the new blade, maintaining the proper orientation for direction of rotation.
5. Affix the bolts and lock washers.
6. Repeat steps 2-5 for all remaining blades.

Checking Hydraulic Pressure

It should be mentioned that most hydraulic problems are a result of low fluid levels. Before checking any other possibilities, make sure the hydraulic fluid level is half way up the sight glass which is located at the right end of the frame.

Hydrostatic pressure can be checked using a pressure gauge (Figure 18) with a range of at least 5,000 psi. It is best to use two gauges simultaneously, but it is possible to use only one gauge and repeat the procedure for each side.

To fully test the hydrostatic system, the spiders will need to be locked so that they cannot rotate. This can easily be done by wrapping a chain around an arm on each spider, thus chaining them together in the back of the trowel.

Once the pressure gauges are installed and the spiders chained together, the system can be checked.

With the engine at 50% to 70% of full speed, and spiders chained together, slowly depress the foot pedal and read the gauges. The hydrostatic pressure should get to at least 3,200 psi. If the hydrostatic pressure will not attain 3,200 psi, the pump should be inspected and/or serviced by an authorized service representative.

Checking Charge Pressure

With the foot pedal in the idle position and the engine at full speed, the pressure should be about 200 psi. This pressure is referred to as "***Charge Pressure***". Charge pressure can be checked more accurately using a 300 psi pressure gauge attached to the charge pressure diagnostic coupler. See Figure 18.

If the charge pressure is less than 150 psi, the charge system may need to be inspected and/ or serviced. In particular, the suction filter and charge pump relief valve should be checked. The suction filter may be plugged, or the relief valve may be stuck. Either condition may cause low charge pressure.

For STH troubleshooting hints see Table 3 on preceeding page.

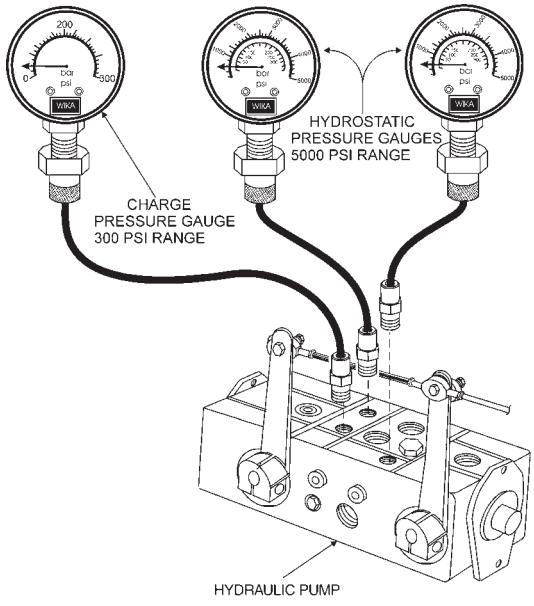


Figure 18. Pressure Gauges (Hydraulic)

TABLE 3. TROUBLESHOOTING		
SYMPTOM	**POSSIBLE PROBLEM**	**SOLUTION**
Engine running rough or not at all.	Kill switch malfunction?	Make sure that the kill switch is functioning when the operator is seated; replace switch if necessary.
	Fuel?	Look at the fuel system. Make sure there is fuel being supplied to the engine. Check to ensure that the fuel filter is not clogged.
	Ignition?	Check to ensure that the ignition switch has power and is functioning correctly.
Safety kill switch not functioning.	Other problems?	Consult engine manufacturer's manual.
	Loose wire connections?	Check wiring. Replace as necessary.
	Bad contacts?	Replace switch.
If trowel "bounces, rolls concrete, or makes uneven swirls in concrete".	Blades?	Make certain blades are in good condition, not excessively worn. Finish blades should measure no less than 2" (50mm) from the blade bar to the trailing edge, combo blades should measure no less that 3.5" (89mm). Trailing edge of blade should be straight and parallel to the blade bar.
	Spider?	Check that all blades are set at the same pitch angle as measured at the spider. A field adjustment tool is available for height adjustment of the trowel arms (see Optional Equipment).
	Bent trowel arms?	Check the spider assembly for bent trowel arms. If one of the arms is even slightly bent, replace it immediately.
	Trowel arm bushings?	Check the trowel arm bushings for tightness. This can be done by moving the trowel arms up and down. If there is more than 1/8" (3.2 mm) of travel at the tip of the arm, the bushings should be replaced. All bushings should be replaced at the same time.
	Thrust collar?	Check the flatness of the thrust collar by rotating it on the spider. If it varies by more than 0.02" (0.5 mm) replace the thrust collar.
	Thrust collar bushing?	Check the thrust collar by rocking it on the spider. If it can tilt more than 3/32" (2.4 mm) [as measured at the thrust collar O.D.], replace the bushing in the thrust collar.
	Thrust bearing worn?	Check the thrust bearing to see that it is spinning free. Note: Thrust cap, replace if necessary.
	Blade pitch?	Check blades for consistent pitch. Adjust per Maintenance section instructions if necessary.
Machine has a perceptible rolling motion while running.	Main shaft?	The main output shaft of the gearbox assembly should be checked for straightness. The main shaft must run straight and cannot be more than 0.003" (0.08 mm) out of round at the spider attachment point.
	Yoke?	Check to make sure that both fingers of the yoke press evenly on the wear cap. Replace yoke as necessary.
	Blades?	Check to ensure that each blade is adjusted to have the same pitch as all other blades.

TABLE 3. TROUBLESHOOTING (CONTINUED)

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Lights (optional) not working.	Wiring?	Check all electrical connections, including the master on/off switch and check to see if wiring is in good condition with no shorts. Replace as necessary.
	Lights?	Check to see if light bulbs are still good. Replace if broken.
Retardant spray (optional) not working.	Retardant?	Check the tank to make sure retardant is present. Fill tank as necessary.
	Wiring?	Check all electrical connections, including master on/off switch connections. Replace components and wiring as necessary.
	Bad switch?	Check the continuity of master on/off switch. Replace if broken.
	Bad spray pump?	If pump has a voltage present when the switch is turned on, but does not operate and electrical connections to the pump are good, replace the pump.
Steering is unresponsive.	Blade speed out of adjustment?	See section on blade speed adjustment.
	Worn components?	Check for wear of steering bearings and linkage components replace if necessary.
	Pivots?	Check to ensure free movement of hydraulic drive motors.
	Hydraulic pressure?	Check to ensure that hydraulic pressure is adequate. See section on checking hydraulic pressure.
Operating position is uncomfortable.	Seat adjust for operator?	Adjust seat with lever located on the front of the seat.
Pitch Controls not working	Broken or loose parts?	Check hydraulic pitch hose connections.
	Wiring?	Check connections between picth control valve assembly and rocker switch. See STH wiring diagram.
	Switch?	Check the continuity of the rocker switches. If switches are malfunctioning, replace immediately.
	Side-to-side adjustment?	Ensure that both sides are pitched about. See maintenance section on blade pitch.
	Picth valve malfunction?	Check pitch valve operation to ensure that all solenoids are functioning properly. See maintenance section on blade pitch.

STH-55JD-TC — EXPLANATION OF CODE IN REMARKS

How to read the marks and remarks used in this parts book.

Items Found In the "Remarks" Column

Serial Numbers-Where indicated, this indicates a serial number range (inclusive) where a particular part is used.

Model Number-Where indicated, this shows that the corresponding part is utilized only with this specific model number or model number variant.

Items Found In the "Items Number" Column

All parts with same symbol in the number column, *, #, +, %, or ■, belong to the same assembly or kit.

NOTE

If more than one of the same reference number is listed, the last one listed indicates newest (or latest) part available.

NOTE

The contents of this catalog are subject to change without notice.

ENGINE JOHN DEERE JD4020TF005, 55 HP

1 Unit

Qty.	P/N	Description
1	11577	MOUNT, MACHINERY
1	10568	THROTTLE CABLE ASSY
3	JDRG600690	AIR FILTER
3	JDM801209	FUEL FILTER
4	11141	SPACER ROD END
2	11142	ROD END
2	12038	BELLOWS
1	12099	VALVE STRG. LEFT SIDE
1	12171	SEAL, WEATHERPACK
1	12172	SEAL, CABLE PACKARD
1	12519	BOOT, LEFT SIDE
1	12518	BOOT, RIGHT SIDE
1	HUP51999	BOLT ASSY, PIVOT
1	HU5177-1	BOLT-PIVOT
1	12487	BOOT TOP HANDLE
2	OEM2783AM	2-PIECE HANDLE
4	OEMAA9	ROCKER ASSY.
2	12474	MICROSWITCH
1	12473	10 AMP PUSHBUTTON SPST PB SW.
1	12091	ROD PUMP ACTUATOR
2	12148	CAP, DUST
1	11491	CABLE, FOOT PEDAL
2	12126	ELEMENT FILTER (RETURN)
1	11884	ELEMENT FILTER (SUCTION)
2	11991	ARM, TROWEL
3	9005	LEVER, LEFT SIDE
6	11039	BUSHING
1	10221	BUSHING, 1 I.D. 1 1/8 O.D. 1 LG.
3	9111	SPRING, LEFT SIDE
1	11992	PLATE, SPIDER
2	12607	CAP KIT, THRUST
3	2143	SPRING, RIGHT SIDE
3	1986	LEVER, RIGHT SIDE
1	12371	BOLT
1	11940	RETAINER
1	11593	SEAT, SPRING
1	12005	SWITCH, KILL
1	4682	SWITCH, LIGHT
1	11792	SOLENOID
1	11418	CAP, FUEL W/GAUGE
1	12332	CAP, HYDRAULIC RESERVOIR
2	11641	SPRING, SPEED CONTROL
3	11643	ROD END
4	1484	BUSHING BRONZE
1	1597	BATTERY CABLE (-)
1	10314	BATTERY CABLE (+)
1	10021	PUMP SPRAY (OLD STYLE)
1	12628	PUMP SPRAY (NEW STYLE)
1	2108	CAP, SPRAY TANK
1	2816	COVER SPRAY MOTOR (OLD)
1	392292	NOZZLE, SPRAY
1	2532	LIGHT, HALOGEN
1	12009	SCREEN FILTER
1	12620	DECAL KIT
1	11098	CIRCUIT BREAKER, 40 AMP
1	8381	BOOT, SWITCH
1	11418	FUEL CAP
2	11611	ROD END (FEMALE)
1	11638	ADAPTER SPEED CTRL. SPRING
1	12091	ROD, PUMP ACTUATOR
4	GE #57	12V DC BULB, INDICATOR LIGHTS

ENGINE PARTS FOR JOHN DEERE STH55JDTC

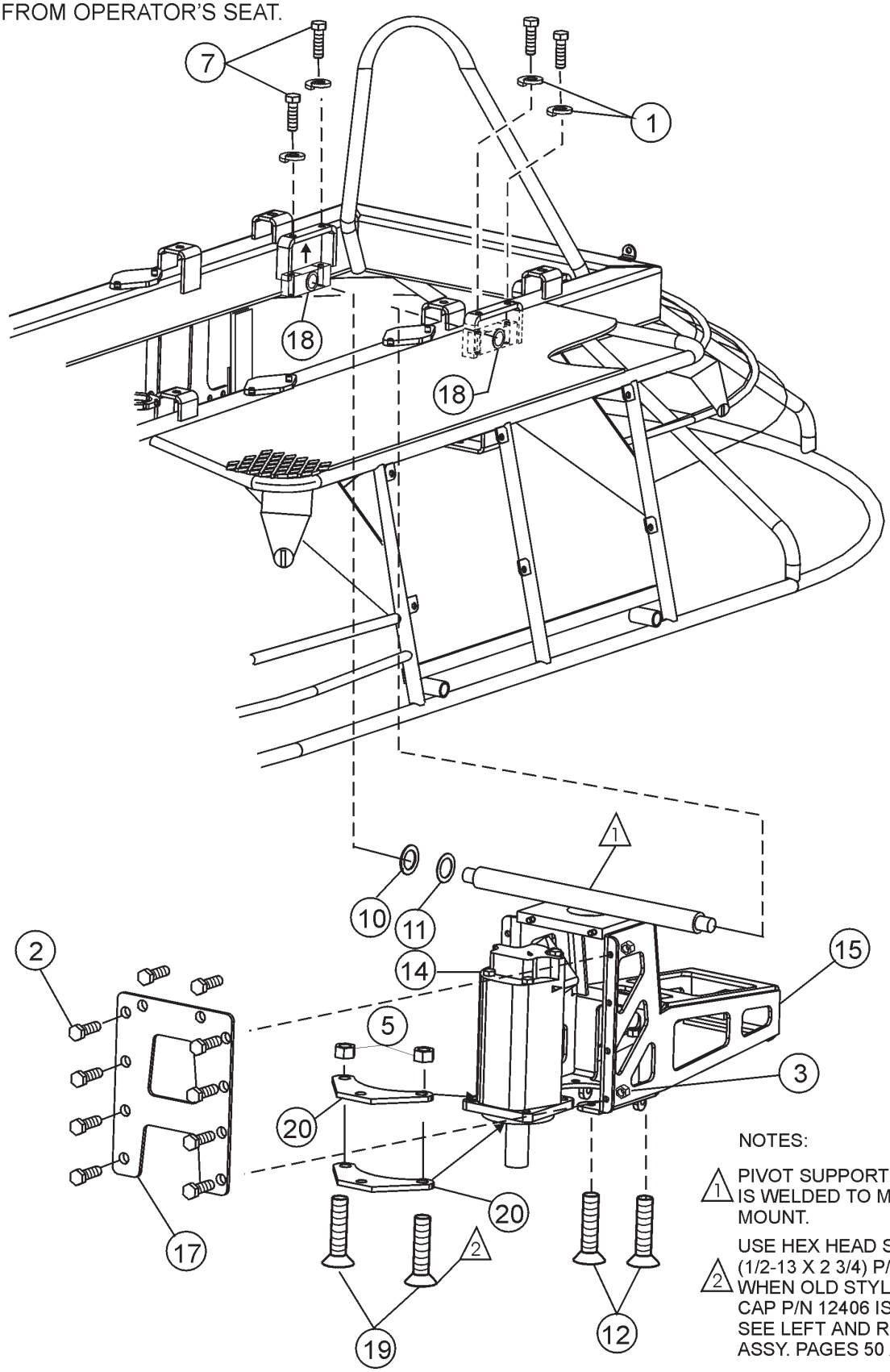
1	JDM801209	OIL FILTER
1	JDT111383	FUEL FILTER
1	JDRG60690	AIR FILTER
1	JDRG60514	TACHOMETER
1	JDRG60509	OIL PRESSURE GAUGE
1	JDRG60504	WATER TEMPERATURE GAUGE
1	JDM801118	MANIFOLD HEATER
1	JDM801821	FAN BELT
3	JDRG60049	PLUG, INDICATOR LIGHT (RED)
1	J DRG60051	PLUG, INDICATOR LIGHT (BLUE)
1	11924	SWITCH IGNITION
1	12001	STARTER KEYS (2 per set)

NOTE:..... Part numbers on this Suggested Spare Parts List may supercede/ replace the P/N shown in the text pages of this book.

NOTE

Part numbers on this Suggested Spare Parts List may supercede/ replace the P/N shown in the text pages of this book.

LEFT SIDE PIVOT ASSEMBLY
VIEW FROM OPERATOR'S SEAT.



NOTES:

1. PIVOT SUPPORT ASSY. IS WELDED TO MOTOR MOUNT.
2. USE HEX HEAD SCREW (1/2-13 X 2 3/4) P/N 12318 WHEN OLD STYLE WEAR CAP P/N 12406 IS INSTALLED. SEE LEFT AND RIGHT SPIDER ASSY. PAGES 50 AND 52.

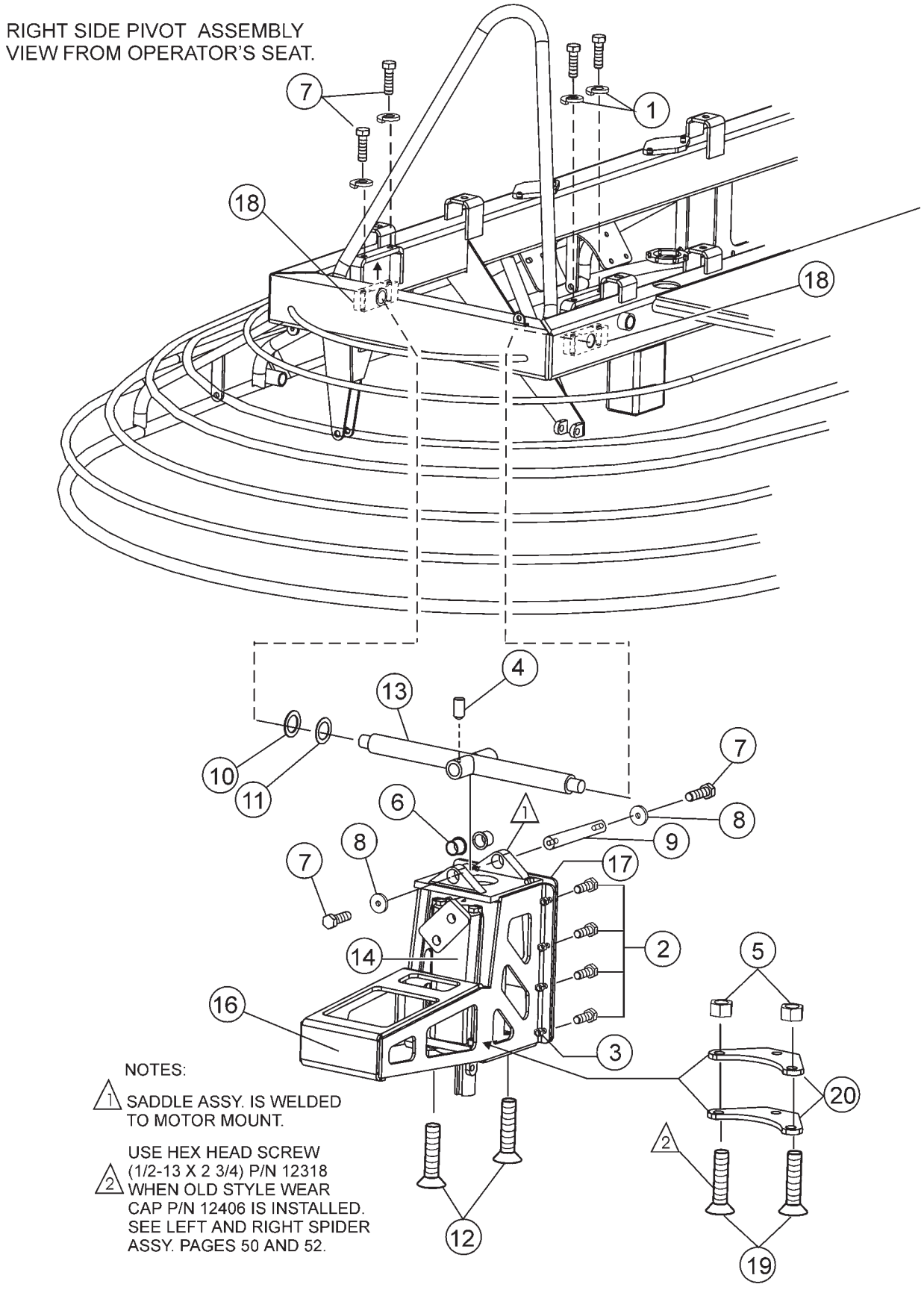
STH-55JD-TC — PIVOT ASSY. (LEFT)

LEFT PIVOT ASSY.

NO	PART NO	PART NAME	QTY	REMARKS
1	0166 A	WASHER, LOCK, 3/8 MED	4	
2	0205	SCREW, HHC 3/8-16 X 1	10	
3	10133	NUT, NYLOC 3/8-16	8	
5	10176	NUT, NYLOC 1/2-13	4	
7	1023	SCREW, HHC 3/8-16 X 1 1/4	4	
10	11772	SHIM, TRUNNION .063 THICK	1	
11	11773	SHIM, TRUNNION .031 THICK	1	
12	11882	SCREW, FHSC 1/2-13 X 2 1/4	2	
14	12112	MOTOR, HYD STH 112-11209	1	
15	12291	MOUNT, HYD MOTOR LEFT W/A	1	
17	12295	PLATE, HYD MOTOR MOUNT END	1	
18	12304	ROCKER BLOCK	2	
19	12591	SCREW, FLUSH HEAD 1/2-13 X 3	2	STH UNITS S/N IK60764 AND LATER. ALSO SEE NOTE
20	12480	PLATE, MOTOR STEERING MT	2	

NOTE:
IF WEAR CAP 12406 IS INSTALLED (STH's WITH S/N IK60763 AND BELOW) USE P/N 12318 (SCREW, HEX HEAD 1/2-13 X 2 3/4).

STH-55JD-TC — PIVOT ASSY. (RIGHT)



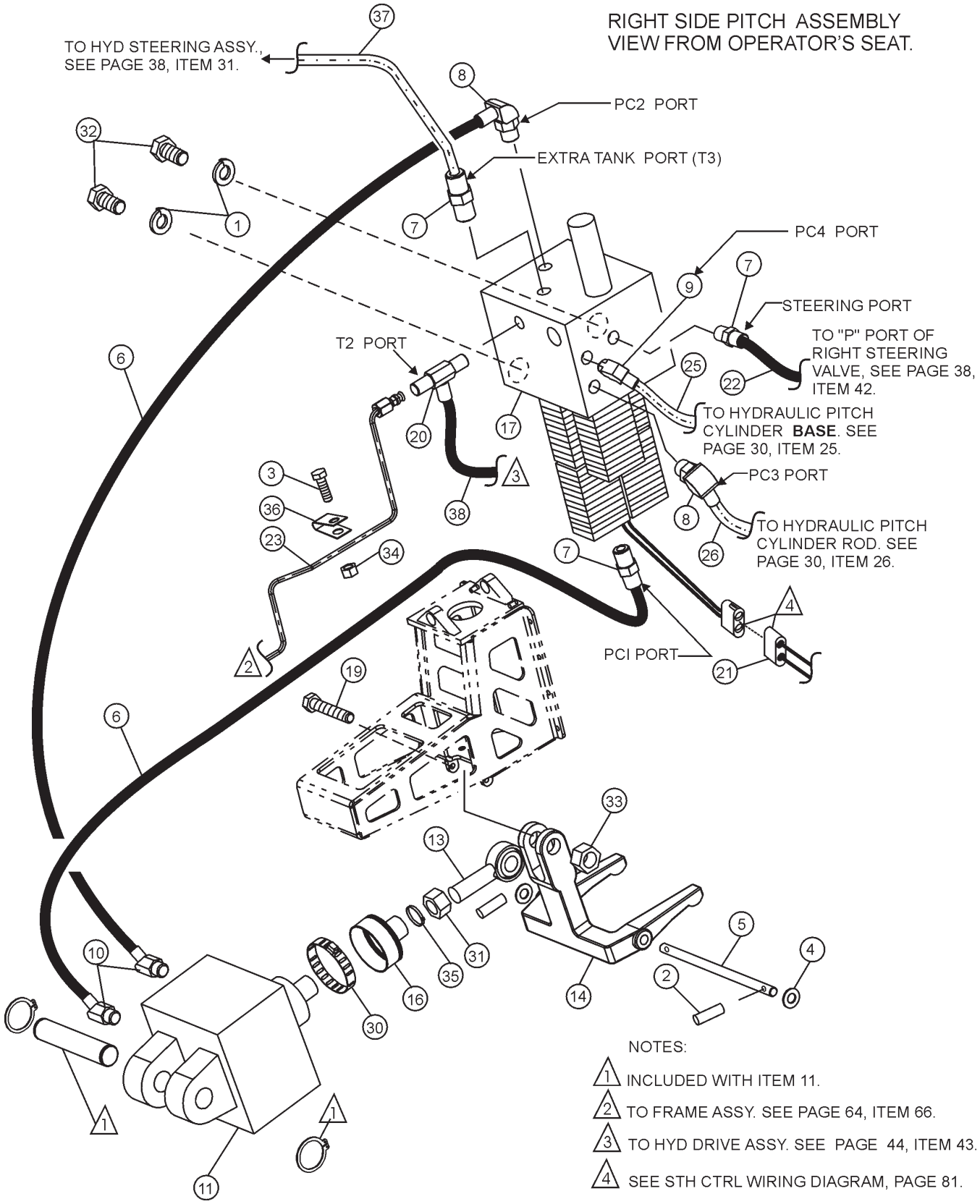
STH-55JD-TC — PIVOT ASSY. (RIGHT)

RIGHT PIVOT ASSY.

NO	PART NO	PART NAME	QTY	REMARKS
1	0166 A	WASHER, LOCK, 3/8 MED	4	
2	0205	SCREW, HHC 3/8-16 X 1	10	
3	10133	NUT, NYLOC 3/8-16	8	
4	10138	SCREW, SHS 1/4-20 X 1/2, N.P.	1	
5	10176	NUT, NYLOC 1/2-13	4	
6	10221	BUSHING, 1ID X 1.1/8 OD X 1 LG	2	
7	1023	SCREW, HHC 3/8-16 X 1 1/4	6	
8	11154	RETAINER, CENTRIFUGAL CLUTCH	1	
9	11420	SHAFT, PIVOT	1	
10	11772	SHIM, TRUNNION .063 THICK	1	
11	11773	SHIM, TRUNNION .031 THICK	1	
12	11882	SCREW, FHSC 1/2-13 X 2 1/4	2	
13	12086	TRUNNION W/A	1	
14	12112	MOTOR, HYD STH 112-11209	1	
16	12292	MOUNT, HYD MOTOR RIGHT W/A	1	
17	12295	PLATE, HYD MOTOR MOUNT END	1	
18	12304	ROCKER BLOCK	2	
19	12591	SCREW, FLUSH HEAD 1/2-13 X3	2	STH UNITS S/N IK60764 AND LATER. ALSO SEE NOTE
20	12480	PLATE, MOTOR STEERING MOUNT	2	

NOTE:
IF WEAR CAP 12406 IS INSTALLED (STH's WITH S/N IK60763 AND BELOW) USE P/N 12318 (SCREW, HEX HEAD 1/2-13 X 2 3/4).

STH-55JD-TC — PITCH ASSY. (RIGHT)



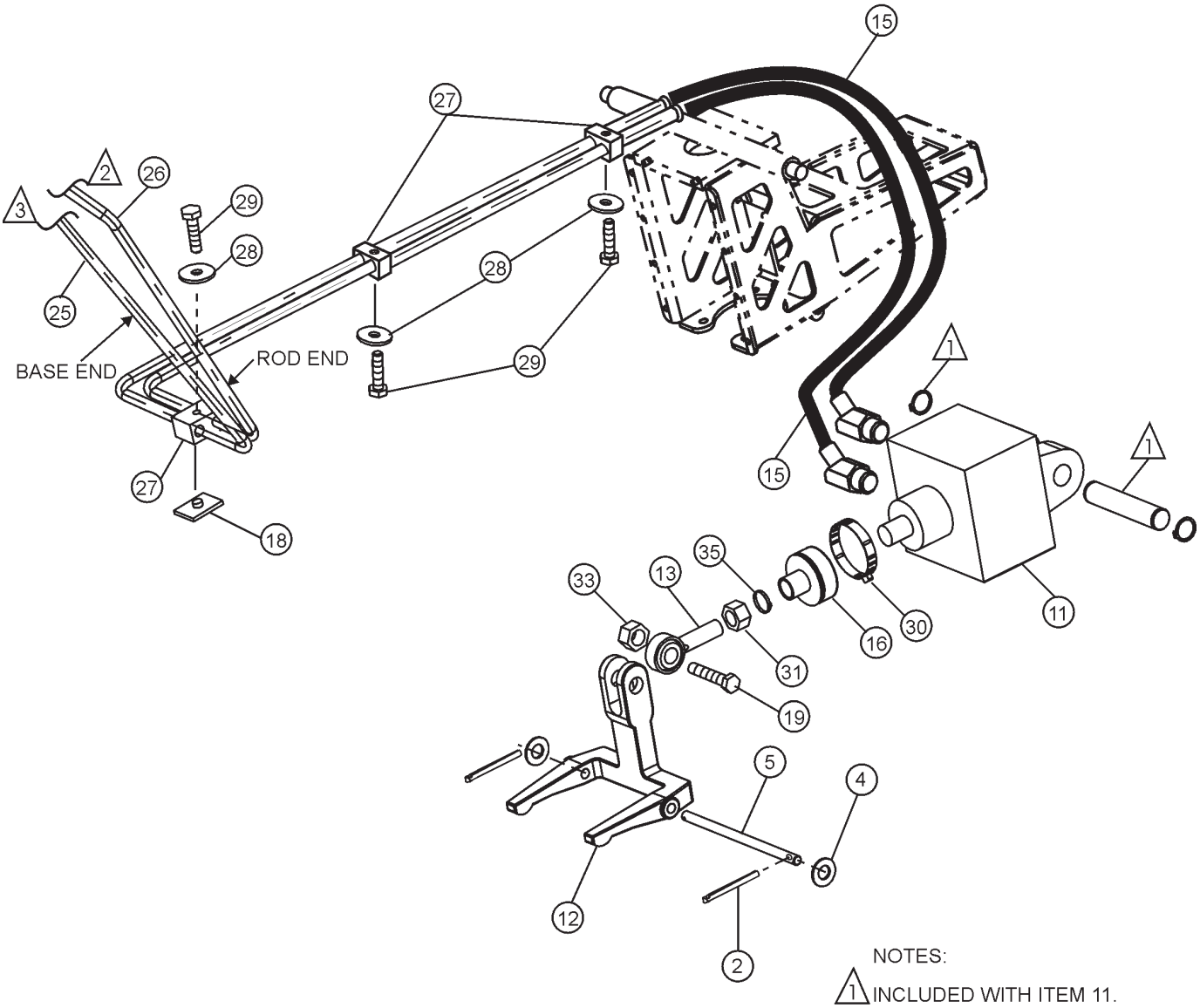
STH-55JD-TC — PITCH ASSY. (RIGHT)

PITCH (RIGHT) ASSY.

NO	PART NO	PART NAME	QTY	REMARKS
1	0166A	WASHER, LOCK, 3/8 MED	2	
2	0183	PIN, COTTER 1/8 X 1 ¼	2	
3	0202	SCREW, HHC 1/16-18 X 1	1	
4	0448	WASHER, FLAT, 7/16 SAE	2	
5	11648	SHAFT, YOKE PIVOT	2	
6	11699	HOSE, BLACK 52. 1/2, 3/8ID	2	
7	11721	FITTING, STR 6MJ-6MO	3	
8	11722	FITTING, 90 6MJ-6MO	2	
9	11780	FITTING, 45 6MJ-6MO	1	
10	11889	FITTING, 45 6MJ-8MO	2	
11	11966	CYLINDER, STH PITCH	1	
13	11972	CONNECTOR ROD END, 3/4 MALE	1	
14	12030	YOKE, STH PITCH LONG ARM	1	
16	12096	BELLOWS, PITCH CYLINDER	1	
17	12116	VALVE ASM, PITCH CONTROL STH	1	
19	12151	SCREW, HHC 3/4-10 X 2-3/4	1	
20	12159	FITTING, TEE 6MJ-6MO-6MJ RUN	1	
21	12183	WIRE ASM, STH CTRL	1	STH S/N ABOVE IJ60711
21	12579	WIRE ASM, STH CTRL	1	STH S/N BELOW IJ60710
22	12257	HOSE ASM, 3/8 ID X 24L 06FJ	1	
23	12246	TUBE, HYD, MANIFOLD DRAIN	1	
24	12247	FITTING, 90 6MJ-3/8MP	1	
25	12259	TUBE, HYD PITCH CYL BASE	1	
26	12260	TUBE, HYD PITCH CYL ROD	1	
30	12277	CLAMP, WORM HOSE 46/70 MM	1	
31	1648	NUT, HEX JAM 3/4-16	1	
32	4196	SCREW, HHC 3/8-16 X 3/4	2	
33	5070B	NUT, NYLOC 3/4-10	1	
34	5283	NUT, NYLOC 5/16-18	1	
35	60103	TIE WRAP, .312W X 8L X .082 THK	1	
36	8128	CLAMP, HOSE SUPPORT, 5/16"	1	
37	12244	TUBE, HYD STEERING RETURN	1	
38	12213	HOSE ASM, 3/8 X 90 ONE END	1	

STH-55JD-TC — PITCH ASSY. (LEFT)

LEFT SIDE PITCH ASSEMBLY
VIEW FROM OPERATORS SEAT.



NOTES:

1 INCLUDED WITH ITEM 11.

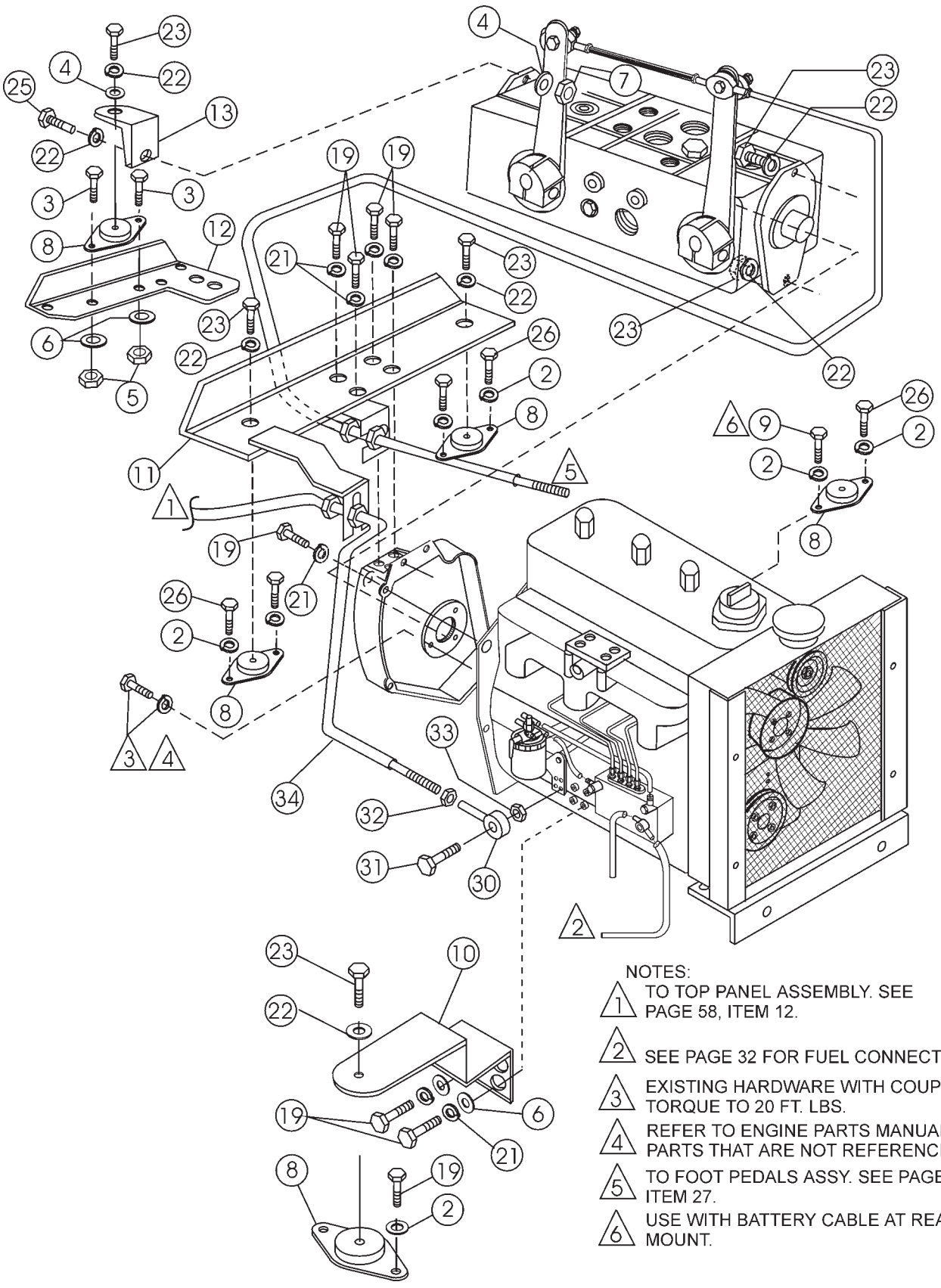
2 TO ITEM 26. SEE PAGE 28.

3 TO ITEM 25, SEE PAGE 28.

STH-55JD-TC — PITCH ASSY. (LEFT)

PITCH (LEFT) ASSY.

NO	PART NO	PART NAME	QTY	REMARKS
2	0183	PIN, COTTER 1/8 X 1 ¼	2	
4	0448	WASHER, FLAT, 7/16 SAE	2	
5	11648	SHAFT, YOKE PIVOT	1	
11	11966	CYLINDER, STH PITCH	1	
12	11969	YOKE, STH PITCH SHORT ARM	1	
13	11972	CONNECTOR ROD END, 3/4 MALE	1	
15	12079	HOSE ASM, 3/8 X 17 STR ENDS	2	
16	12096	BELLOWS, PITCH CYLINDER	1	
18	12138	CLAMP BASE, 3/8 TUBE DOUBLE	1	
19	12151	SCREW, HHC 3/4-10 X 2-3/4	1	
25	12259	TUBE, HYD PITCH CYL BASE	1	
26	12260	TUBE, HYD PITCH CYL ROD	1	
27	12273	CLAMP, 3/8 TUBE PLASTIC PAIR	3	
28	12274	COVER, CLAMP STAUFF USDS1	3	
29	12275	SCREW, CLAMP STAUFF ASDS1	3	
30	12277	CLAMP, WORM HOSE 46/70MM	2	
31	1648	NUT, HEX JAM 3/4-16	1	
33	5070B	NUT, NYLOC 3/4-10	1	
35	60103	TIE WRAP, .312W X 8L X .082THK	1	

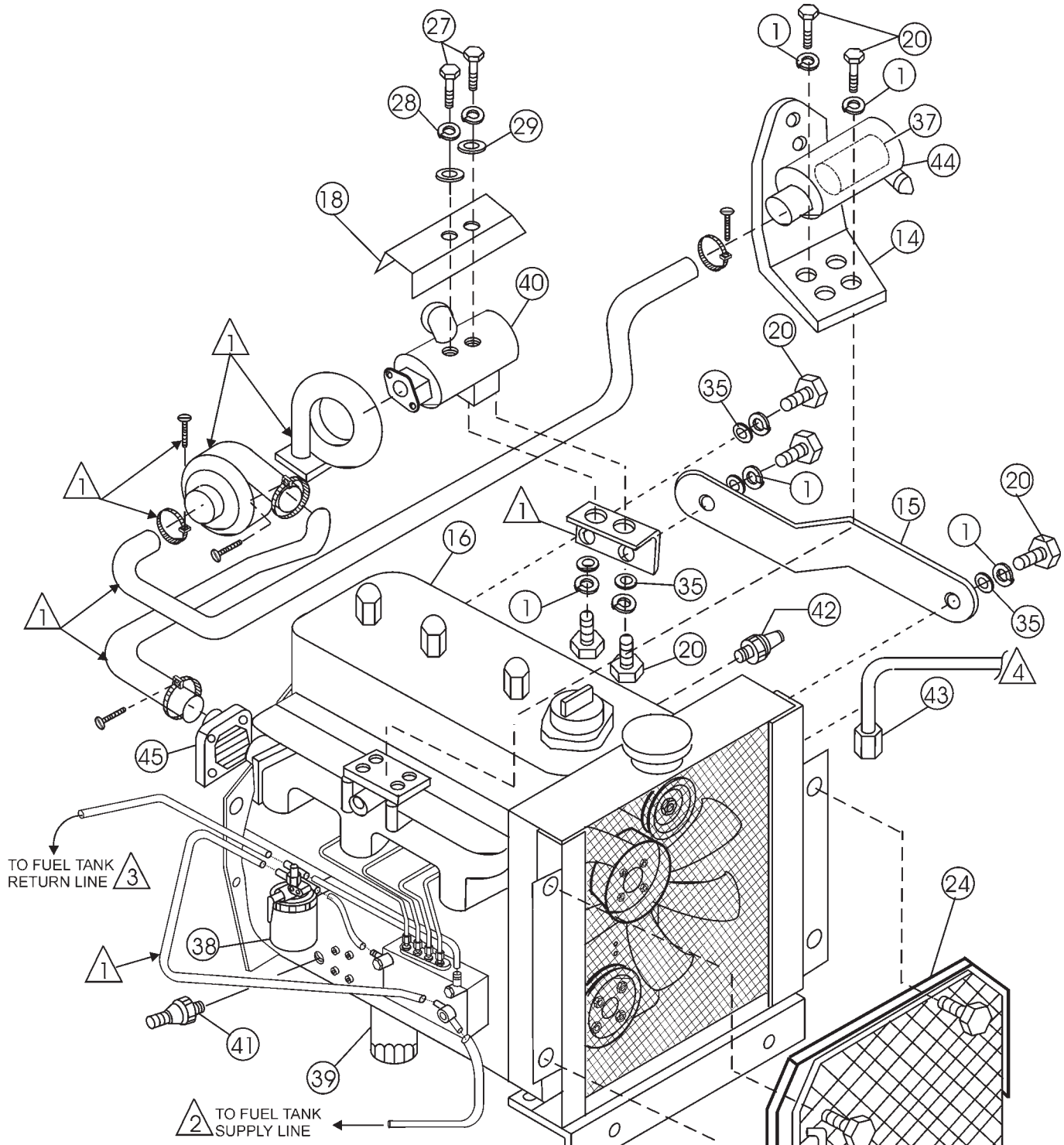


NOTES:

1. TO TOP PANEL ASSEMBLY. SEE PAGE 58, ITEM 12.
2. SEE PAGE 32 FOR FUEL CONNECTIONS.
3. EXISTING HARDWARE WITH COUPLER. TORQUE TO 20 FT. LBS.
4. REFER TO ENGINE PARTS MANUAL FOR PARTS THAT ARE NOT REFERENCED.
5. TO FOOT PEDALS ASSY. SEE PAGE 66, ITEM 27.
6. USE WITH BATTERY CABLE AT REAR MOTOR MOUNT.

ENGINE (JOHN DEERE)

NO	PART NO	PART NAME	QTY.	REMARKS
2	0166 A	WASHER, LOCK, 3/8 MED	8	
3	0205	SCREW, HHC 3/8-16 X 1	2	
4	0447	WASHER, FLAT, 1/2 SAE	2	
5	10133	NUT, NYLOC 3/8-16	2	
6	10136	WASHER, FLAT, 3/8 SAE	10	
7	10176	NUT, NYLOC 1/2-13	1	
8	11577	MOUNT, MACHINERY	5	
9	11691	SCREW, HHC 3/8-24 X 3/4	1	
10	11799	MOUNT, LEFT MOTOR	2	
11	11854	MOUNT, RIGHT MOTOR W/A	1	
12	12033	SUPPORT, PUMP TAIL	1	
13	12035	SUPPORT, PUMP W/A	1	
19	16056	SCREW, HHC M10-1.5 X 25 MM	16	
21	2955	WASHER, LOCK, 7/16	20	
22	5054 A	WASHER, LOCK, 1/2 MED.	9	
23	5218	SCREW, HHC 1/2-13 X 1 ½	8	
25	6159 A	SCREW, HHC 1/2-13 X 2	1	
26	6869	SCREW, HHC 3/8-24 X 1/2	7	
30	2153	ROD END	1	
31	3513	SCREW	1	
32	0937	NUT, HEX	1	
33	10019	NUT, NYLOC	1	
34	10568	CABLE THROTTLE	1	



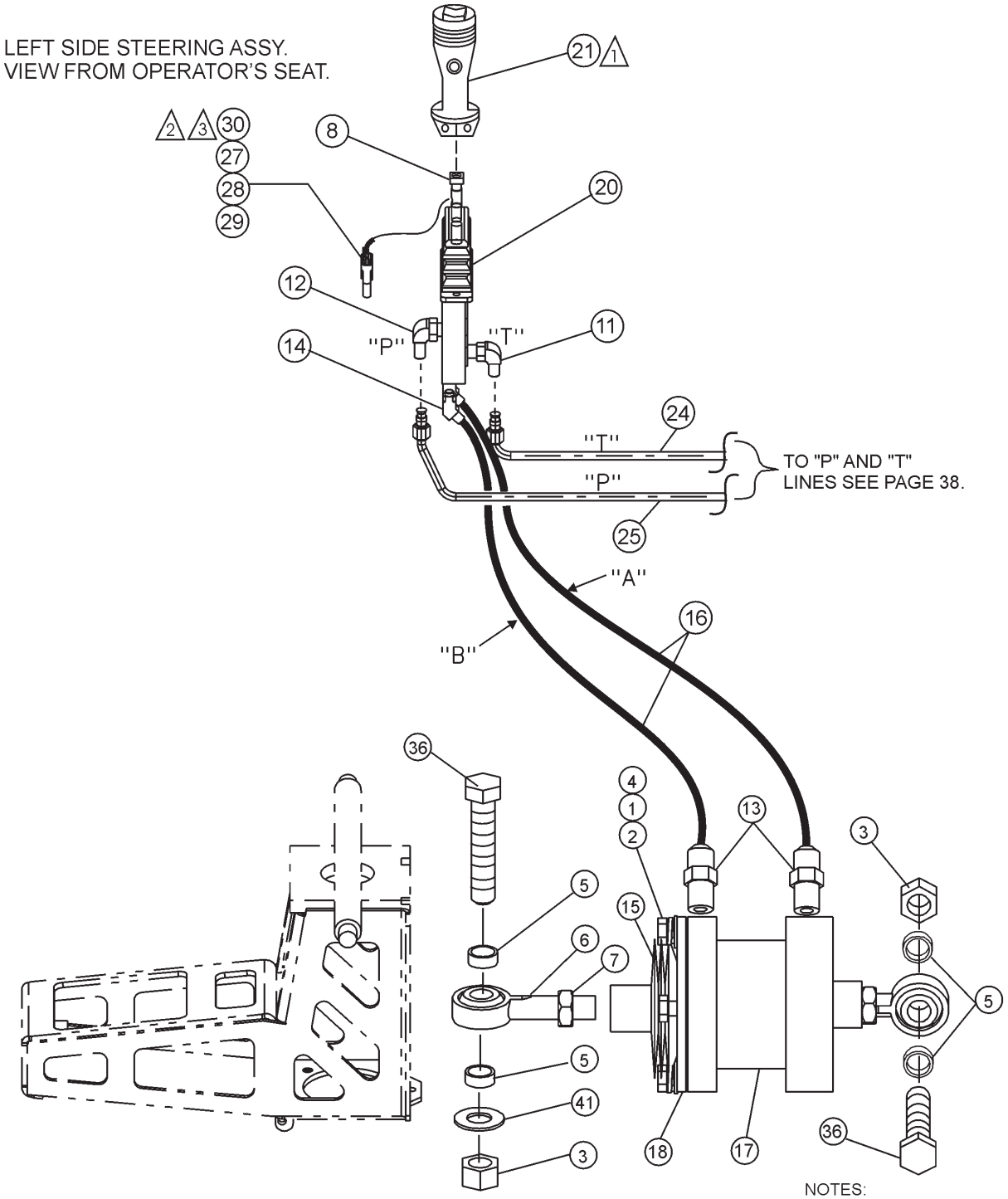
NOTES:

1. REFER TO ENGINE PARTS MANUAL FOR PARTS THAT ARE NOT REFERENCED.
2. TO FUEL TANK ASSY. SEE PAGE 64, ITEM 56 (SUPPLY LINE).
3. TO FUEL TANK ASSY. SEE PAGE 64, ITEM 37 (RETURN LINE).
4. CONNECT TO TACHOMETER. SEE PAGE 58, ITEM 65.

ENGINE (JOHN DEERE)

NO	PART NO	PART NAME	QTY.	REMARKS
1	0161C	WASHER, LOCK, 5/16 MED	6	
14	12041	MOUNT AIR FILTER	1	
15	12071	RADIATOR BRACKET, LARGE	1	
16	12104	ENGINE JD4020TF005, 55 HP	1	JOHN DEERE
17	12122	COVER, RADIATOR	1	
20	2866	SCREW, HHC M8-1.25 X 20 MM	6	
24	60049	TRIM EDGE 1/32 (62B3-1/32)	2	
27	0131 A	SCREW	2	
28	0181 B	LOCK WASHER	2	
29	0948	WASHER, FLAT, 5/16 SAE	2	
35	0300 B	FLAT WASHER	4	
36	121256-44600	BRACKET, OVERFLOW BOTTLE	1	NORTHSTAR
37	JDRG60690	AIR FILTER (ELEMENT)	1	
38	JDT111383	FUEL FILTER	1	
39	JDM801209	OIL FILTER	1	
40	12617	MUFFLER	1	
41	JDRG60510	OIL SENDER UNIT	1	
42	JDT110736	WATER TEMP. SENDER UNIT	1	
43	TC007	7 FT. TACHOMETER CABLE	1	
44	JDRG60688	CANNISTER, AIR FILTER	1	
45	JDM81118	HEATER	1	

STH-55JD-TC — HYDRAULIC STEERING (LEFT) ASSY.



NOTES:

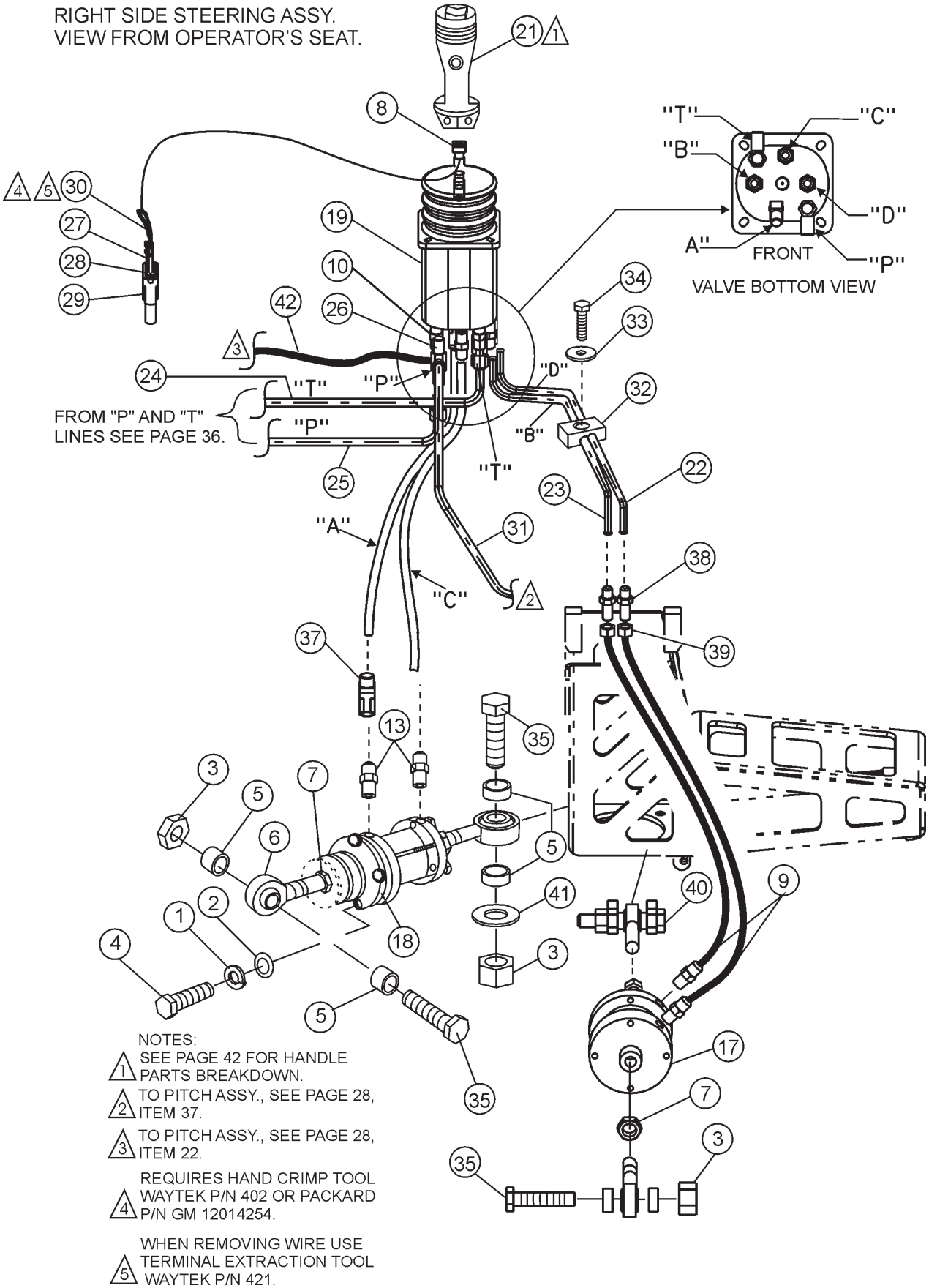
1. SEE PAGE 42 FOR HANDLE ASSY. PARTS BREAKDOWN.
2. REQUIRES HAND CRIMP TOOL WAYTEK P/N 402 OR PACKARD P/N GM 12014254.
3. WHEN REMOVING WIRE USE TERMINAL EXTRACTION TOOL WAYTEK P/N 421.

STH-55JD-TC — HYDRAULIC STEERING (LEFT) ASSY.

HYDRAULIC STEERING (LEFT) ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1	0161 C	WASHER, LOCK, 5/16 MED.	4	
2	0300 B	WASHER, FLAT, 5/16 SAE	4	
3	10176	NUT, NYLOC 1/2-13	2	
4	10229	SCREW, HHC 5/16-24 X 1	4	
5	11141	SPACER, ROD END	4	
6	11142	ROD END, 1/2-20 MALE RH	2	
7	11146	NUT, HEX JAM 1/2-20	2	
8	11676	TUBE, HANDLE	1	
11	11722	FITTING, 90 6MJ-6MO	1	
12	11723	FITTING, 90 6MJ-8MO	1	
13	11725	FITTING, STR 6MJ-1/4MP	2	
14	11780	FITTING, 45 6MJ-6MO	2	
15	12038	BELLOWS, STEERING CYL.	1	
16	12055	HOSE ASM, 3/8X36 LNG 45 ONE END	2	
17	12056	CYLINDER, HYD STEERING	1	
18	12060	PLATE, BELLOWS MOUNTING	1	
20	12099	VALVE, STRG LSIDE HUSCO7470-A47	1	
21	12115	HANDLE, STEERING TWO SWITCH	1	
24	12141	TUBE, HYD STEERING PRESSURE	1	
25	12142	TUBE, HYD STEERING RETURN	1	
27	12171	SEAL, WEATHERPACK 16-18 GA	1	
28	12172	SEAL, CABLE PACKARD 39004	3	
29	12177	CONNECTOR ELEC PACKARD 38046	1	
30	12223	TERMINAL, MALE PACKARD 30034	4	
36	12402	SCREW, HHC 1/2-13 X2 1/2	2	
41	0447	WASHER FLAT 1/2 SAE	2	

STH-55JD-TC — HYDRAULIC STEERING (RIGHT) ASSY.



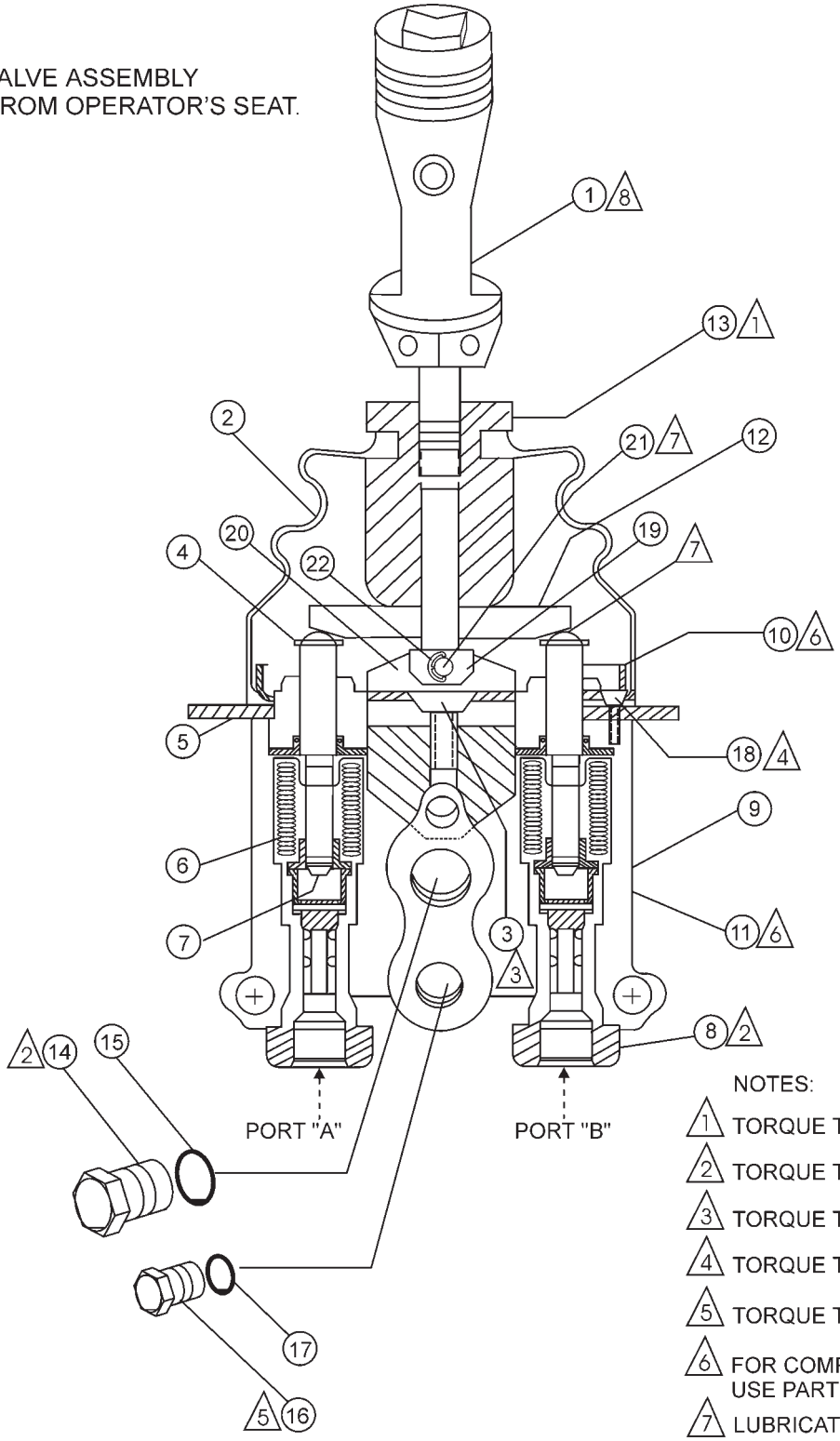
STH-55JD-TC — HYDRAULIC STEERING (RIGHT) ASSY.

HYDRAULIC STEERING (RIGHT) ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1	0161 C	WASHER, LOCK, 5/16 MED.	8	
2	0300 B	WASHER, FLAT, 5/16 SAE	8	
3	10176	NUT, NYLOC 1/2-13	3	
4	10229	SCREW, HHC 5/16-24 X 1	8	
5	11141	SPACER, ROD END	6	
6	11142	ROD END, 1/2-20 MALE RH	4	
7	11146	NUT, HEX JAM 1/2-20	4	
8	11676	TUBE, HANDLE	1	
9	11698	HOSE, BLACK 15.1/2. 3/8ID	2	
10	11721	FITTING STR 6MJ-6MO	3	
13	11725	FITTING, STR 6MJ-1/4MP	4	
17	12056	CYLINDER, HYD STEERING	2	
18	12060	PLATE, BELLOWS MOUNTING	2	
19	12098	VALVE, STRG R SIDE HUSCO7480-66	1	
21	12115	HANDLE, STEERING TWO SWITCH	1	
22	12136	TUBE, HYD STEERING RETURN	1	
23	12137	TUBE, HYD STEERING PRESSURE	1	
24	12141	TUBE, HYD STEERING PRESSURE	1	
25	12142	TUBE, HYD STEERING RETURN	1	
26	12159	FITTING, TEE 6MJ-6MO-6MJ RUN	2	
27	12171	SEAL, WEATHERPACK 16-18 GA	1	
28	12172	SEAL, CABLE PACKARD 39004	3	
29	12177	CONNECTOR ELEC PACKARD 38046	1	
30	12223	TERMINAL, MALE PACKARD 30034	4	
31	12244	TUBE, HYD STEERING RETURN	1	
32	12273	CLAMP, 3/8 TUBE PLASTIC PAIR	1	
33	12274	COVER, CLAMP STAUFF USDS1	1	
34	12275	SCREW, CLAMP STAUFF ASDS1	1	
35	12318	SCREW, HHC 1/2-13 X 2 3/4	3	
37	12409	FITTING, 45 6MJ-GFJ SWIVEL	1	
38	16333	FITTING, STR 6MJ BLKHD UNION	2	
39	16334	NUT, HEX JAM BLKHD .5625-18UNF	2	
40	2549	SCREW, HHC 1/2-13 X3	1	
41	0447	WASHER FLAT 1/2 SAE	2	
42	12257	HOSE ASM 3/8 ID X24L 06FJ	1	

STH-55JD-TC — VALVE ASSY. (LEFT)

LEFT VALVE ASSEMBLY
VIEW FROM OPERATOR'S SEAT.



NOTES:

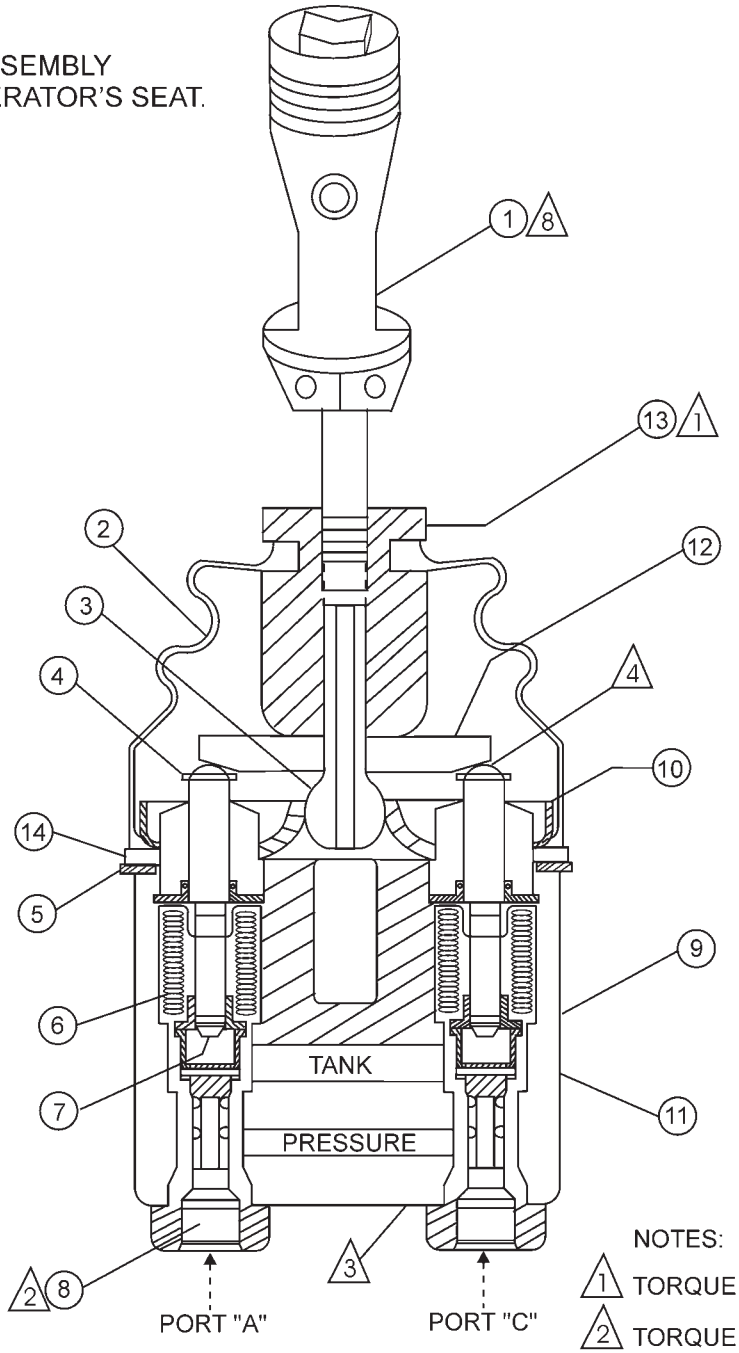
1. TORQUE TO 48 ± 5 FT. LBS
2. TORQUE TO 33 ± 3.5 FT. LBS
3. TORQUE TO 14 ± 1.5 FT. LBS
4. TORQUE TO 7 ± 1.0 FT. LBS
5. TORQUE TO 18 ± 2.0 FT. LBS
6. FOR COMPLETE VALVE ASSY. USE PART NUMBER 12099.
7. LUBRICATE PIVOT JOINT, PLATE AND PLUNGER CONTACT AREAS AS REQUIRED.
8. FOR HANDLE ASSY. PARTS BREAK-DOWN SEE PAGE 42.

STH-55JD-TC — VALVE ASSY. (LEFT)

VALVE ASSY. (LEFT)

NO	PART NO	PART NAME	QTY.	REMARKS
1	12115	HANDLE	1	
2*	12519	BOOT, LEFT	1	
3*	HU51761	CAP SCREW-FLAT HD	1	
4*	HU51770	RETAINING RING-EXT	2	
5*	12536	GASKET	2	
6*	HU53748	SPRING	2	
7*	12523	PLUNGER CAPSULE ASSY.	2	
8*	12521	METERING CAPSULE ASSY.	2	
9*	HU7472-A11	HOUSING- PILOT VALVE	1	
10*	HU51773-1	CLAMP BOOT	1	
11	12099	VALVE , ASSY (LEFT)	1	..... INCLS. ITEMS W/*
12*	HU51941	PLATE-PIVOT	1	
13*	HU51494	NUT-SPECIAL	1	
14*	HU3108	PLUG-SAE	1	
15*	HU53-908	O-RING	1	
16*	HU3182	PLUG-SAE	1	
17*	HU53-906	O-RING	1	
18*	HU51775	CAP SCREW-FLAT HD	1	
19*	HU51771-1	BOLT-PIVOT	1	
20*	HU51769	BRACKET-PIVOT	1	
21*	HU51774	PIN-PIVOT	1	
22*	HU51770	RETAINING RING-EXT	2	

RIGHT VALVE ASSEMBLY
VIEW FROM OPERATOR'S SEAT.



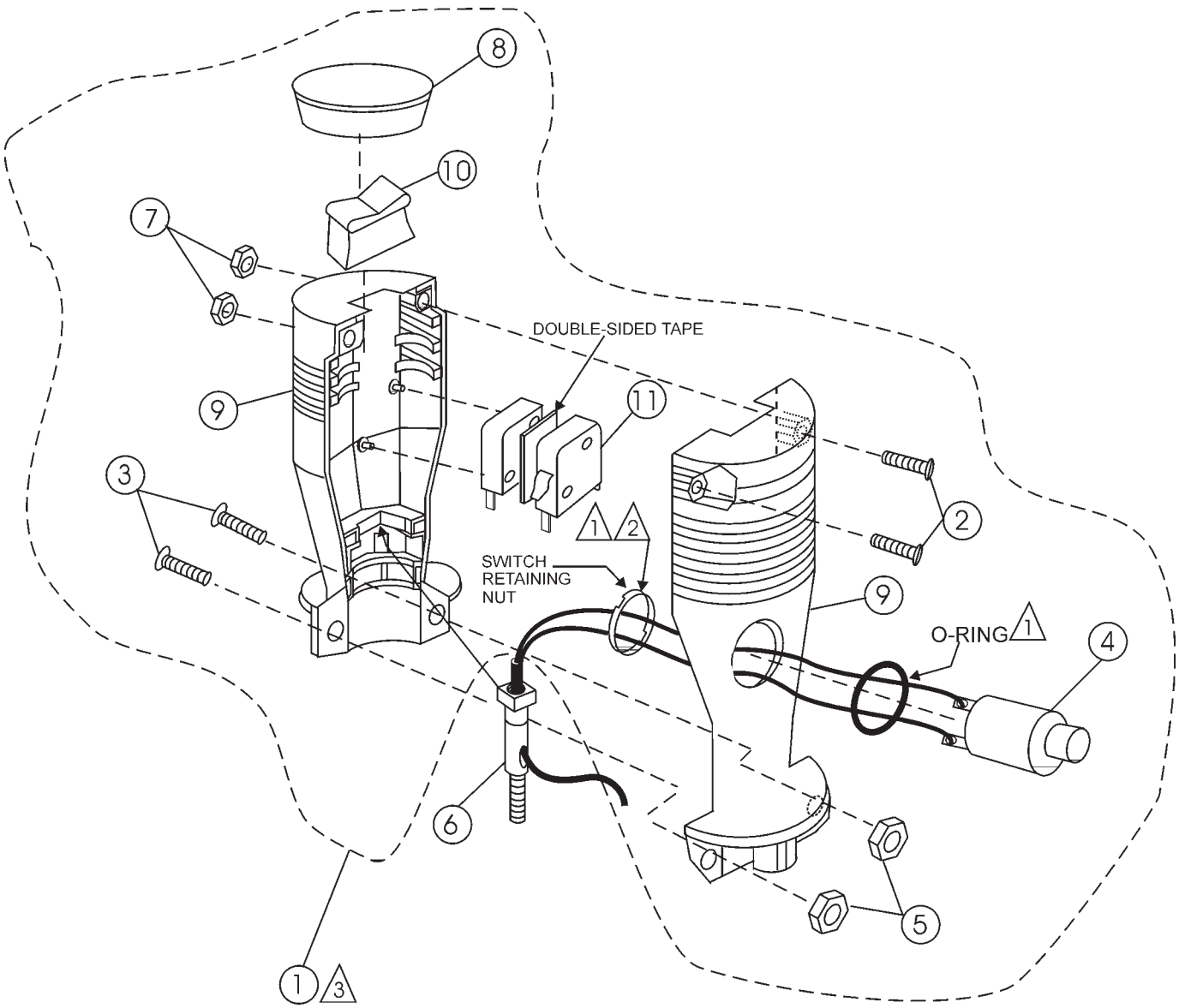
NOTES:

1. TORQUE TO 48 ± 5 FT. LBS
2. TORQUE TO 33 ± 3.5 FT. LBS
3. FOR COMPLETE VALVE ASSY. USE PART NUMBER 12098.
4. LUBRICATE BALL AND SOCKET JOINT, ACTUATOR PLATE, AND PLUNGER CONTACT AREAS AS REQUIRED.
5. FOR HANDLE ASSY. PARTS BREAKDOWN SEE PAGE 42.

VALVE ASSY. (RIGHT)

NO	PART NO	PART NAME	QTY.	REMARKS
1	12115	HANDLE	1	
2*	12518	BOOT, RIGHT	1	
3*	HUP51999	BOLT ASSY, PIVOT	1	
4*	HU53616	RETAINING RING-EXT	2	
5*	12535	GASKET	4	
6*	HU53748	SPRING	4	
7*	12523	PLUNGER CAPSULE ASSY.	4	
8*	12521	METERING CAPSULE ASSY.	4	
9*	HU51505-A1	HOUSING VALVE	1	
10*	HU52698	CLAMP, BOOT	1	
11	12098	VALVE ASSY (RIGHT)	1	INCLS. ITEMS W/*
12*	HU51489	PLATE-PIVOT	1	
13*	HU51494	NUT-SPECIAL	1	
14*	12520	MOUNTING PLATE	1	

STH-55JD-TC — HANDLE ASSY.



NOTES:

1. O-RING AND SWITCH RETAINING NUT ARE PART OF ITEM 4 (P/N 12473).

2. APPLY A SMALL AMOUNT OF LOW STRENGTH LOCTITE TO HOLD SWITCH RETAINING NUT IN PLACE.

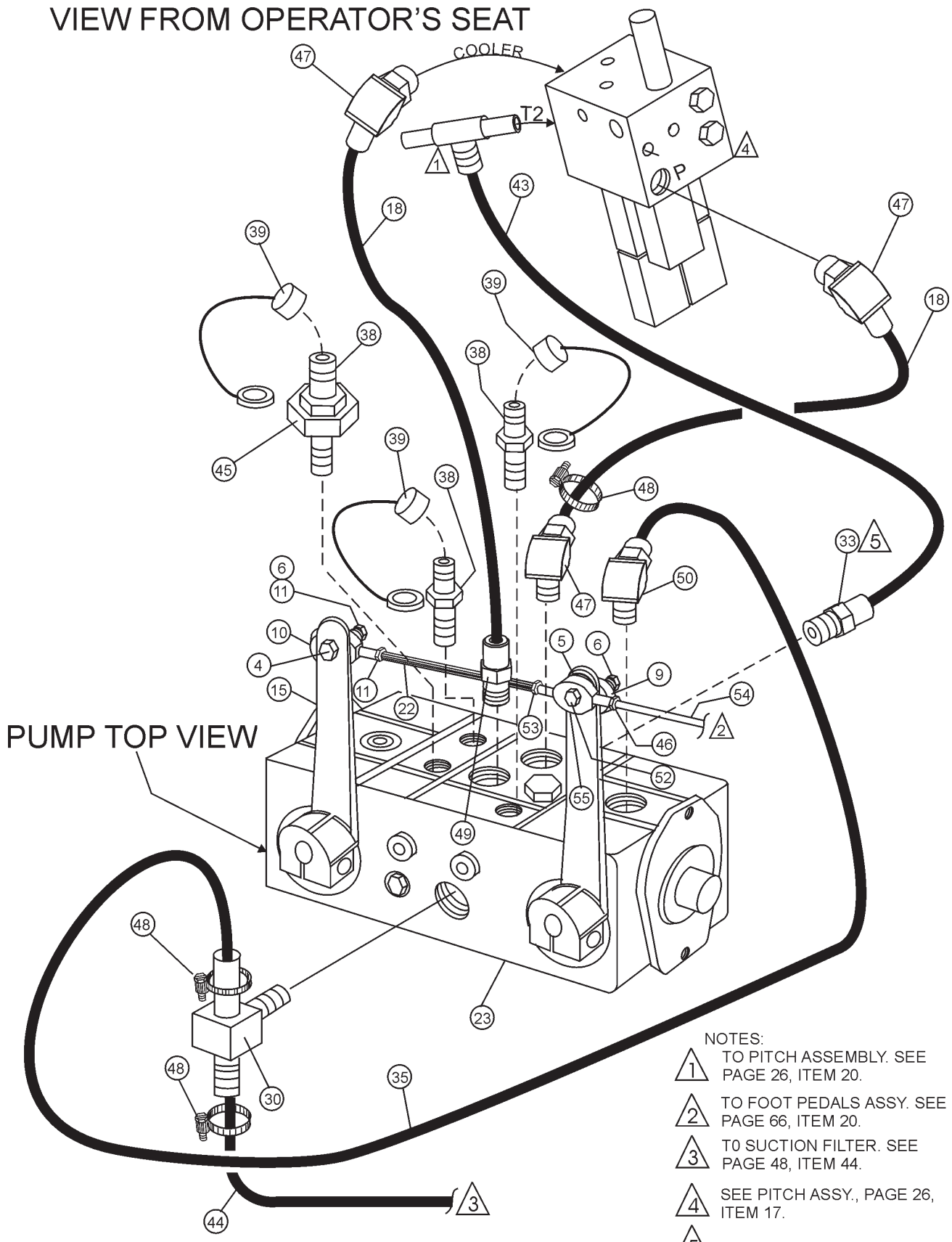
3. INCLUDES ALL ITEMS WITHIN OUTLINE. FOR COMPLETE HANDLE ASSEMBLY USE P/N 12115.

STH-55JD-TC — HANDLE ASSY.

HANDLE ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1	12115	HANDLE ASSY,	1	INCLS. ITEMS W/*
2*	OEMAA5	UPPER SCREW	2	
3*	OEMAA7	LOWER SCREW	2	
4*	12473	10 AMP MOMENTARY SPST PB SWITCH	1	
5*	OEMAA8	LOWER NUT	2	
6	11676	ADAPTER COUPLING W/CABLE PASSAGE	1	
7*	OEMAA6	UPPER NUT	2	
8*	12487	BOOT, TOP HANDLE	1	
9*	OEM2783AM	2-PIECE HANDLE W/HARDWARE	1	
10*	OEMAA9	ROCKER ASSEMBLY COMPLETE	1	
11*	12474	MICROSWITCH (SOLDER TABS)	2	

STH-55JD-TC — HYDRAULIC PUMP (TOP) DRIVE ASSY.



NOTES:

1. TO PITCH ASSEMBLY. SEE PAGE 26, ITEM 20.
2. TO FOOT PEDALS ASSY. SEE PAGE 66, ITEM 20.
3. T0 SUCTION FILTER. SEE PAGE 48, ITEM 44.
4. SEE PITCH ASSY., PAGE 26, ITEM 17.
5. SEE NOTE ON PAGE 45.

STH-55JD-TC — HYDRAULIC PUMP (TOP) DRIVE ASSY.

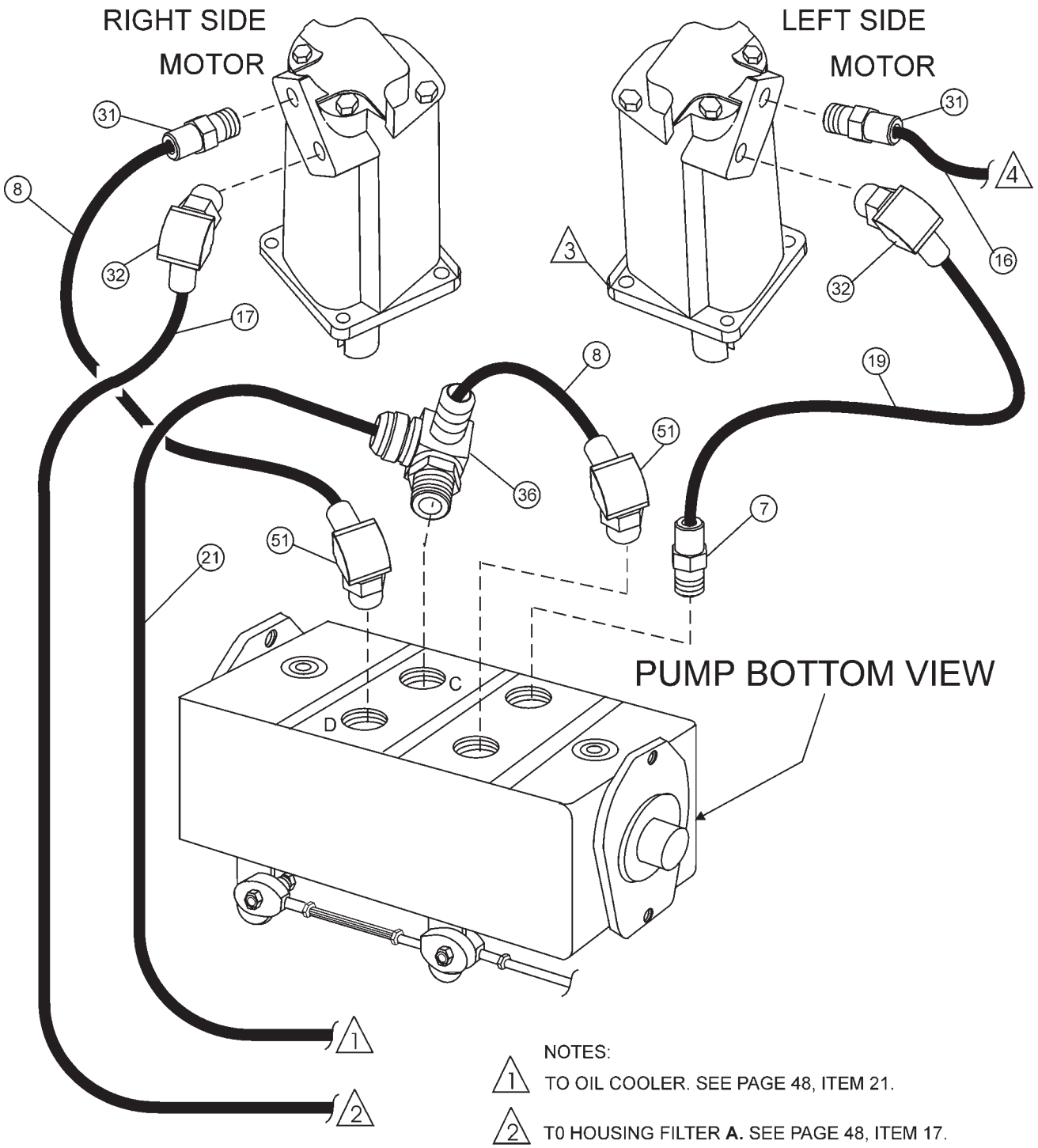
HYDRAULIC PUMP (TOP) DRIVE ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
4	0730	SCREW, HHC 1/4-20 X 1	1	
5	0948	WASHER, FLAT, 1/4 SAE	1	
6	10024	NUT, NYLOC 1/4-20	2	
7	11386	FITTING, STR 12MJ-12MO	3	
9	11611	ROD END, 1/4-28 FEMALE RH	2	
10	11612	ROD END, 1/4-28 FEMALE LH	1	
11	11613	NUT, FULL HEX 1/4-28 LH	1	
15	11919	LEVER, PUMP STH	2	
18	12078	HOSE ASM, 1/2ID 14LNG STR ENDS	2	
22	12091	ROD, PUMP ACTUATOR	1	
23	12094	PUMP ASM, SUNDS 4355086	1	
30	12129	FIT, TEE 12BARB-12BARB-16MO	1	
33	12139	VALVE, RELIEF DT370-MOMF-125	1	SEE NOTE BELOW
35	12144	HOSE, SUCTION 3/4 100R4 9 LNG	1	
38	12147	FIT, QC DIAGN PARKER PD361	3	
39	12148	CAP, DUST DIAG PARKER PD6-285	3	
43	12213	HOSE ASM 3/8X18 90 ONE END	1	
44	12327	HOSE SUCTION 3/4 100R4 11.5 LG	1	
45	12331	FITTING, STR 10MO-6FO	1	
46	19378	NUT, HEX JAM 1/4-28	1	
47	3322	FITTING, 90 10MJ-10MO	3	
48	3333	CLAMP, 1.1/4 HOSE	3	
49	3365	FITTING, STR 10MJ-10MO	2	
50	3461	FITTING, 90 12BARB-12MO	1	
52	5277	SCREW, HHC 1/4-20 X 1 1/2	1	
53	6904	NUT, HEX FINISH 1/4-28	1	
54	11491	CABLE, THROTTLE ASSY.	1	
55	11611	ROD END 1/4-28 FEMALE RH	1	

NOTE:
This check valve looks like an ordinary fitting. **Do Not** use an ordinary fitting in place of this check valve. This is a ***spring loaded check valve***. If this spring loaded check valve is not installed on the STH Ride-On Power Trowel it will cause the trowel to not steer properly and may cause ***extreme*** pump damage.

STH-55JD-TC — HYDRAULIC PUMP (BOTTOM) DRIVE ASSY.

VIEW FROM OPERATOR'S SEAT



NOTES:

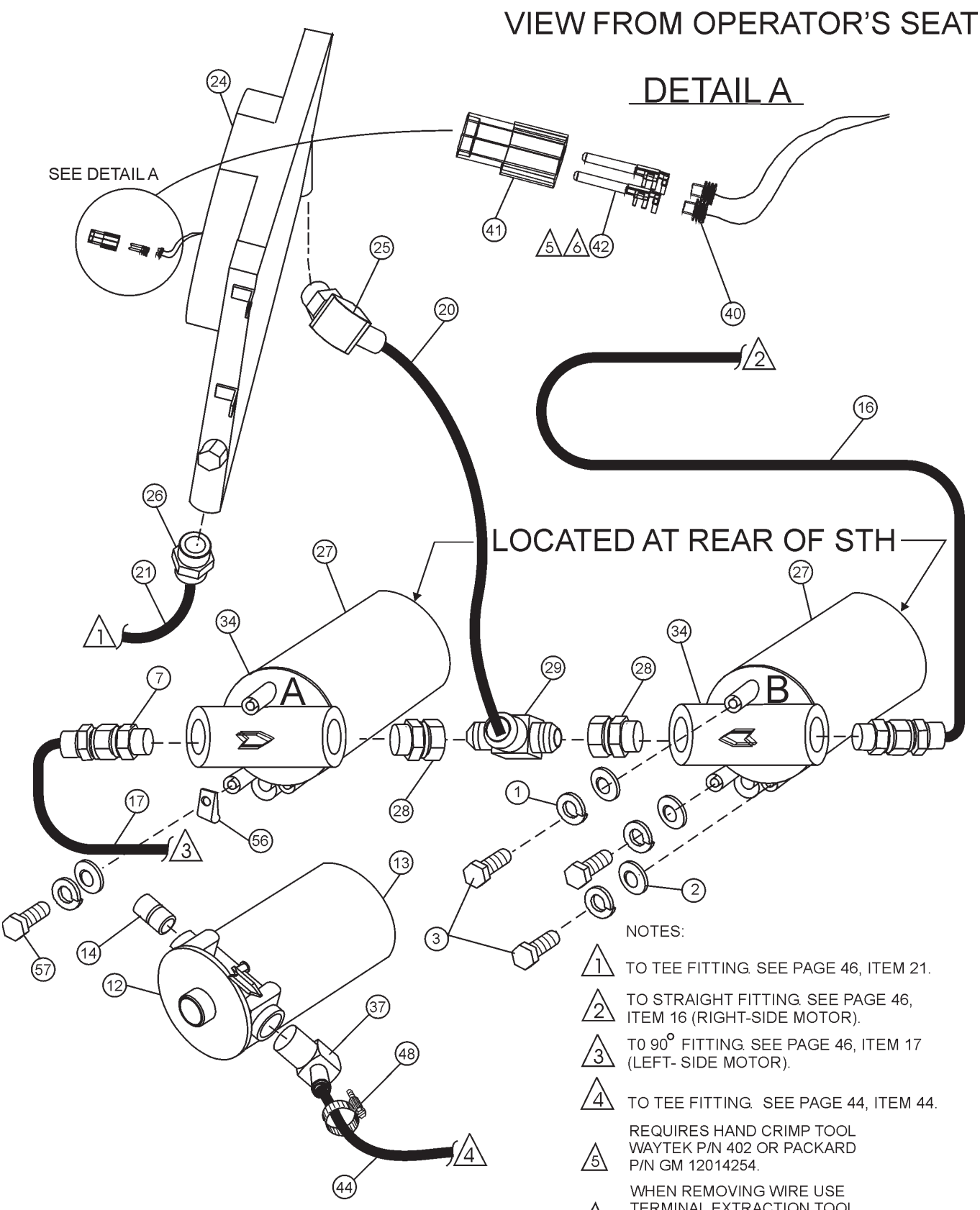
1. TO OIL COOLER. SEE PAGE 48, ITEM 21.
2. T0 HOUSING FILTER **A.** SEE PAGE 48, ITEM 17.
3. REFERENCE PIVOT ASSEMBLY PAGE 24, ITEM 14.
4. T0 HOUSING FILTER **B.** SEE PAGE 48, ITEM 16.

STH-55JD-TC — HYDRAULIC PUMP (BOTTOM) DRIVE ASSY.

HYDRAULIC PUMP (B0TT0M) DRIVE ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
7	11386	FITTING, STR 12MJ-12MO	1	
8	11588	HOSE ASM, 3/4 ID X 27LG 90 END	2	
16	12076	HOSE ASM, 3/4IDX37LNG 90 END	1	
17	12077	HOSE ASM, 3/4IDX35 STR ENDS	1	
19	12080	HOSE ASM, 3/4ID 64.5LNG 90 END	1	
21	12082	HOSE ASM, 1 ID 18.25LN 100R1	1	
31	12130	FITTING, STR 12MJ-16MO	2	
32	12131	FITTING, 90 12MJ-16MO	2	
36	12145	FIT, TEE 12MO-12MJ-16MJ RUN	1	
51	3911385	FITTING, 90 12MJ-12MO	2	

STH-55JD-TC — HYDRAULIC PUMP (REAR) DRIVE ASSY



NOTES:

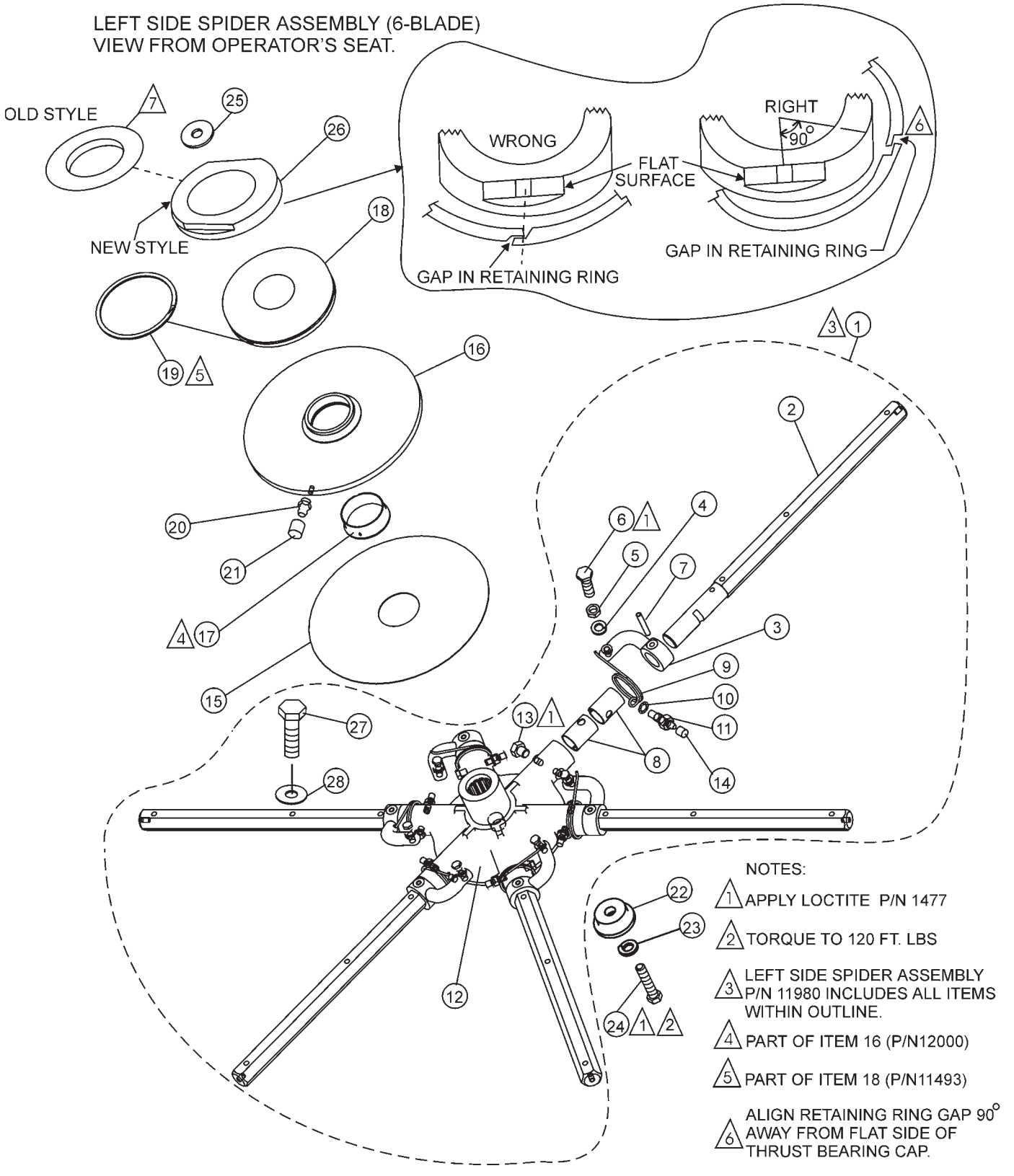
1. TO TEE FITTING. SEE PAGE 46, ITEM 21.
2. TO STRAIGHT FITTING. SEE PAGE 46, ITEM 16 (RIGHT-SIDE MOTOR).
3. T0 90° FITTING. SEE PAGE 46, ITEM 17 (LEFT- SIDE MOTOR).
4. TO TEE FITTING. SEE PAGE 44, ITEM 44.
5. REQUIRES HAND CRIMP TOOL WAYTEK P/N 402 OR PACKARD P/N GM 12014254.
6. WHEN REMOVING WIRE USE TERMINAL EXTRACTION TOOL WAYTEK P/N 421.

STH-55JD-TC — HYDRAULIC PUMP (REAR) DRIVE ASSY

HYDRAULIC PUMP (REAR) DRIVE ASSY

NO	PART NO	PART NAME	QTY.	REMARKS
1	0161	WASHER, LOCK, 5/16 MED	6	
2	0300	WASHER, FLAT, 5/16 SAE	6	
3	0655	SCREW, HHC 5/16-18 X 3/4	6	
7	11386	FITTING, STR 12MJ-12MO	1	
12	11883	HOUSING, SUC. FLTR ZINGA SF-100	1	
13	11884	ELEMENT, SUC FLTR ZINGA SE-10	1	
14	11893	FITTING, NIPPLE 1MP CLOSE	1	
16	12076	HOSE ASM, 3/4IDX37LNG 90 END	1	
17	12077	HOSE ASM, 3/4IDX35 STR ENDS	1	
20	12081	HOSE ASM, 1ID 25LN 100R1 90 END	1	
24	12121	COOLER, OIL MFR-15-94798	1	
25	12124	FITTING, 90 16MJ-16MO	1	
27	12126	ELEMENT, FILTER ZINGA HE-10 (RETURN)	2	
28	12127	FITTING, STR 12MO-12FJ SWIV	2	
29	12128	FITTING, TEE 12MJ-12MJ-16MJ	1	
34	12143	HOUSING, FILTER HF-11-25-0	2	
37	12146	FITTING, 90 12BARB-16MP	1	
40	12171	SEAL, WEATHERPACK 16-18 GA	2	
41	12176	CONNECTOR WEATHERPAC 2 PIN	1	
42	12179	TERMINAL W'PACK MALE 14-16GA	2	
44	12327	HOSE SUCTION 3/4 100R4 11.5 LG	1	
48	3333	CLAMP, 1.1/4 HOSE	1	
56	8128	CLAMP, HOSE SUPPORT, 5/16	1	
57	0202	HEX HEAD, SCREW 5/16-18 X 3/4 LG	1	

STH-55JD-TC — 6-BLADE SPIDER (LEFT) ASSY

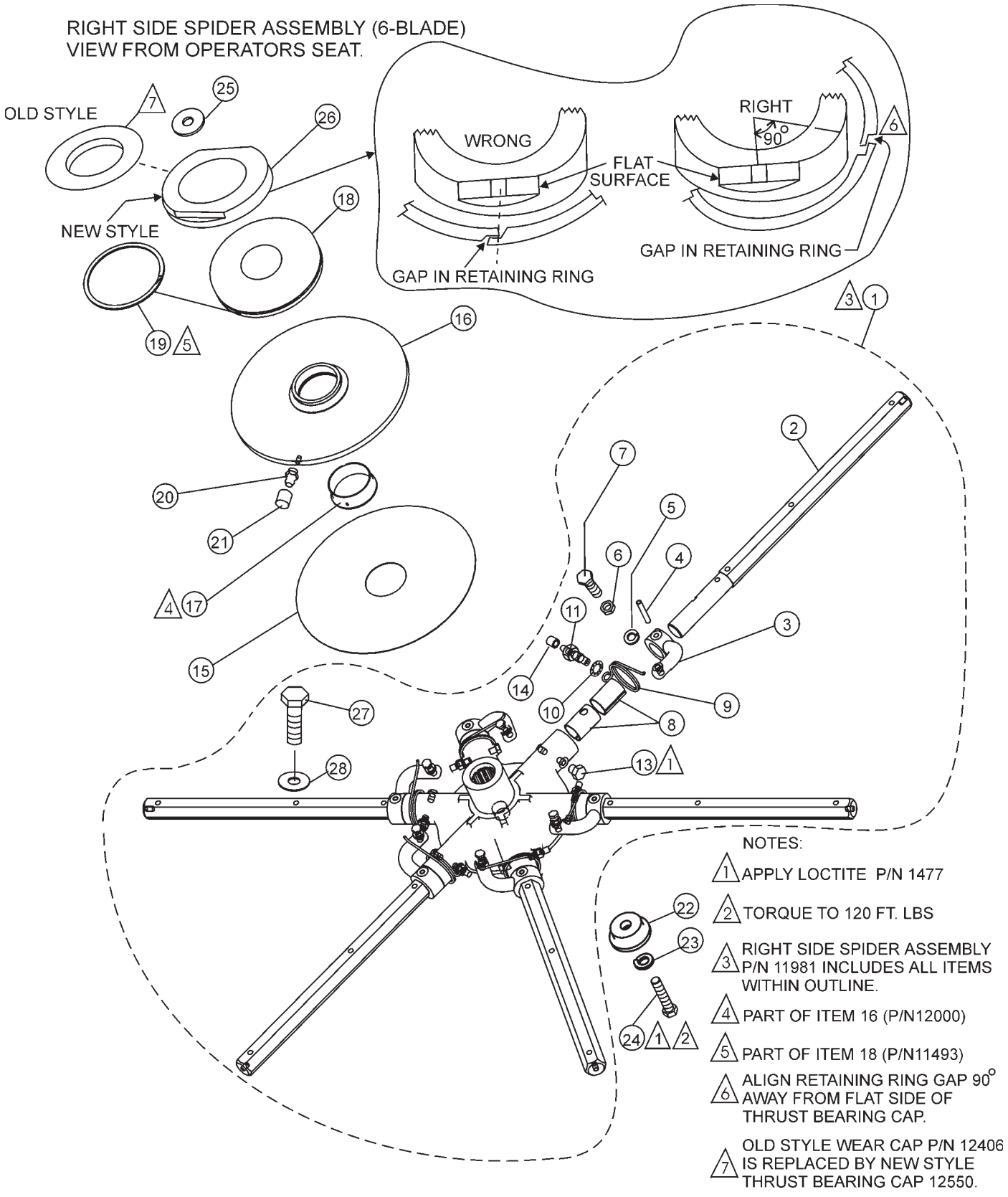


STH-55JD-TC — 6-BLADE SPIDER (LEFT) ASSY

6-BLADE SPIDER (LEFT) ASSY

NO	PART NO	PART NAME	QTY.	REMARKS
1	11980	SPIDER ASM, LEFT SIDE	1	INCLS. ITEM W/*
2*	11991	ARM, TROWEL EXTENDED	6	
3*	9005	LEVER, TROWEL ARM LEFT SIDE	6	
4*	0166 A	WASHER, LOCK, 3/8 MED.	6	
5*	1876	NUT, HEX JAM 3/8 – 16 CLASS 2B	6	
6*	0164 B	SCREW, HHC	6	
7*	9006	PIN, ROLL 5/16 X 2	6	
8*	11039	BUSING, ARM 1 PIECE	12	
9*	9111	SPRING, LEFT TROWEL	6	
10*	1875	WASHER, INT. SHKP. 3/8	6	
11*	1322	SCREW ASM., ARM RETAINING	6	
12*	11992	PLATE, SPIDER 6 BLADE	1	
13*	11602	SCREW, HHC 3/8-16 X 3/8	6	
14*	1162 A	CAP, GREASE ZERK / 2	6	
15	12250	PLATE, WEAR	1	
16	12000	THRUST COLLAR	1	INCLS. ITEM W/+
17+	11464	BUSING, THRUST COLLAR	1	
18	11493	BEARING, THRUST W/SPRIAL RET.	1	INCLS. ITEM W/# (INSTALL W/RET. RING BELOW CENTER)
19#	12181	RING, RETAINING	1	
20	2621	FITTING, GREASE	1	
21	1162 A	CAP, GREASE ZERK / 2	1	
22	11940	RETAINER, SPIDER STH	1	
23	12220	WASHER, LOCK, 1/2 HIGH STRENGTH	1	
24	12371	SCREW, HHC 1/2 -20 X GR. 8	1	
25	12394	SPACER 12MM X 40MM X 0.12	1	
26	12550	CAP, THRUST BEARING	1	NEW STYLE REPLACES 12406
27*	105	HHCS 5/16 – 18 X 1 1/2“	18	
28*	0161C	LOCK WASHER 5/16”	18	

STH-55JD-TC — 6-BLADE SPIDER (RIGHT) ASSY

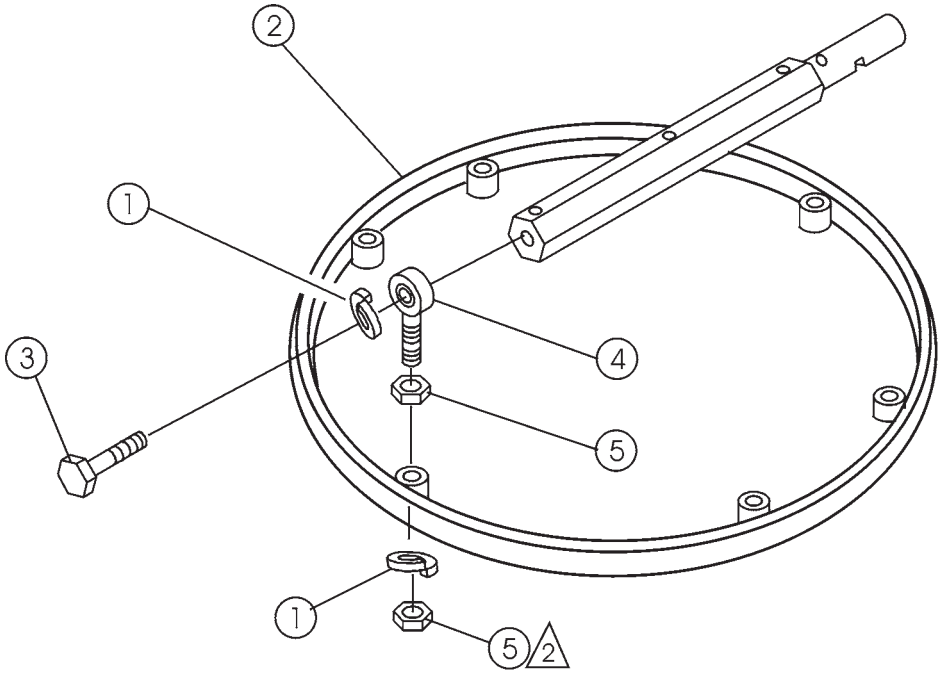


STH-55JD-TC — 6-BLADE SPIDER (RIGHT) ASSY

6-BLADE SPIDER (RIGHT) ASSY

NO	PART NO	PART NAME	QTY.	REMARKS
1	11981	SPIDER ASM, RIGHT SIDE	1	INCLS ITEM W/*
2*	11991	ARM, TROWEL EXTENDED	6	
3*	1986	LEVER, TROWEL ARM RIGHT SIDE	6	
4*	9006	PIN, ROLL 5/16 X 2	6	
5*	0166 A	WASHER, LOCK, 3/8 MED.	6	
6*	1876	NUT, HEX JAM 3/8 – 16 CLASS 2B	6	
7*	0164 B	SCREW, HHC	6	
8*	11039	BUSING, ARM 1 PIECE	12	
9*	2143	SPRING, RIGHT TROWEL	6	
10*	1875	WASHER, INT. SHKP. 3/8	6	
11*	1322	SCREW ASM., ARM RETAINING	6	
12*	11992	PLATE, SPIDER 6 BLADE	1	
13*	11602	SCREW, HHC 3/8-16 X 3/8	6	
14*	1162 A	CAP, GREASE ZERK / 2	6	
15	12250	PLATE, WEAR	1	
16	12000	THRUST COLLAR	1	INCLS ITEM W/+
17+	11464	BUSING, THRUST COLLAR	1	
18	11493	BEARING, THRUST 60172 RSNR	1	INCLS ITEM W/# (INSTALL W/RET. RING BELOW CENTER)
19#	12181	RING, RETAINING	1	
20	2621	FITTING, GREASE	1	
21	1162 A	CAP, GREASE ZERK / 2	1	
22	11940	RETAINER, SPIDER STH	1	
23	12220	WASHER, LOCK, 1/2 HIGH STRENGTH	1	
24	12371	SCREW, HHC 1/2 -20 X GR. 8	1	
25	12394	SPACER 12MM X 40MM X 0.12	1	
26	12550	CAP, THRUST BEARING	1	NEW STYLE REPLACES 12406
27*	105	HHCS 5/16 – 18 X 1 1/2“	18	
28*	0161C	LOCK WASHER 5/16”	18	

STH-55JD-TC — STABILIZER RING ASSY



NOTES:

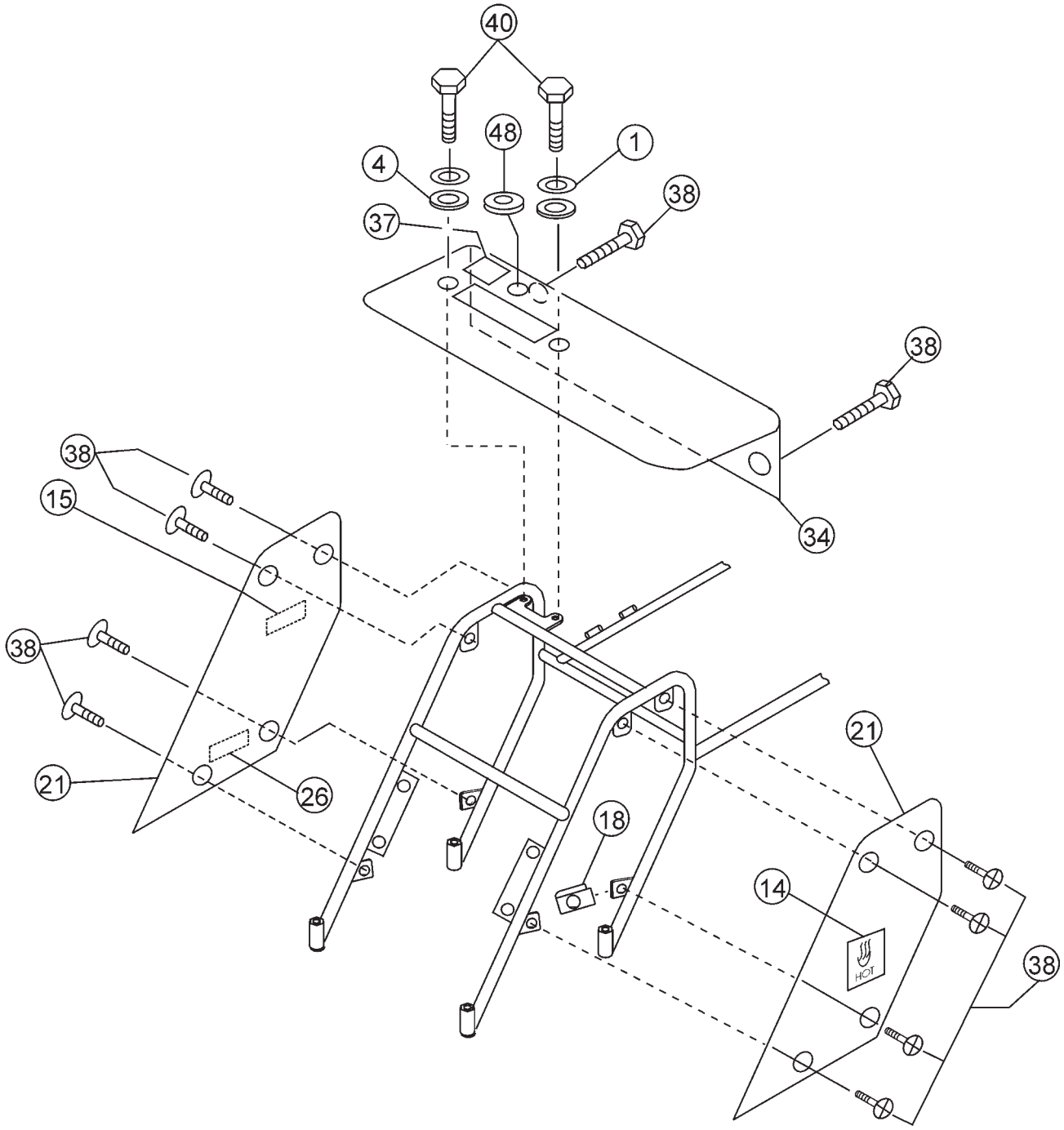
2 APPLY LOCTITE P/N 1477

STH-55JD-TC — STABILIZER RING ASSY

STABILIZER RING ASSY

NO	PART NO	PART NAME	QTY.	REMARKS
1	0161C	WASHER, LOCK, 5/16 MED	6	
2	12185	RING, STABILIZER, EXT ARM, HD	1	
3	1237	SCREW, SCH 5/16-18 X 7/8	6	
4	1723	ROD END, 5/16-24 MALE	6	
5	6014C	NUT, HEX FINISH 5/16-24	12	

TOP PANEL (LEFT)
VIEW FROM OPERATOR'S SEAT



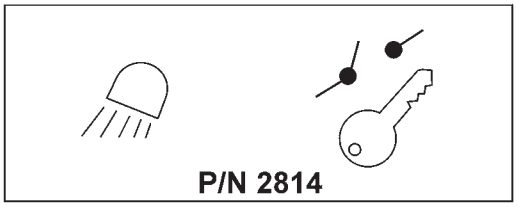
STH-55JD-TC — TOP PANEL (LEFT) /DECALS

TOP PANEL (LEFT)

NO	PART NO	PART NAME	QTY.	REMARKS
1	0161 C	WASHER, LOCK, 5/16 MED	2	
4	0300B	WASHER, FLAT, 5/16 SAE	2	
14	11246	DECAL SET, INTERNATIONAL STDS	1	SEE NOTE
15	11247	DECAL (HELMET, FOOT, HAND)	1	SEE NOTE
18	11534	NUT, "U" TYPE, 1/4-20	8	
21	11663	PANEL, REAR LEFT	1	
26	11811	DECAL, DIESEL FUEL	1	SEE NOTE
34	1228	PANEL TOP, LEFT	1	
37	12249	DECAL LEFT PITCH ONLY	1	SEE NOTE
38	12287	SCREW, THP 1/4 X 20 X 3/4 SS	10	
40	12289	SCREW, BHSC 5/16 X 24 X 1 SS	2	
48	2923	GROMMET, 7/16 ID, 1/16 X 9/16 GRV	1	

NOTE:
Decals used on the STH are shown below and on page 9. These decals can be ordered as a complete decal kit by using P/N 12620. To order individual decals (no decal kit) use specified decal part number.

DECAL CONTROL PANEL



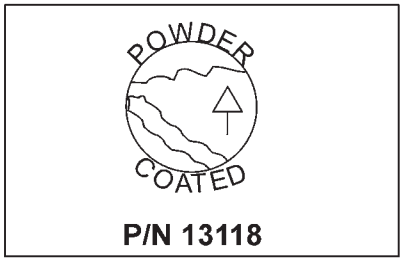
P/N 2814

DECAL PATENT PENDING

PATENT PENDING

P/N 11912

DECAL POWDER COATED



P/N 13118

DECAL FRONT PANEL HYD-S DRIVE

HYDROSTATIC DRIVE

P/N 11760

DECAL MQ WHITEMAN, 23-1/2”

MQ MULTIQUIP WHITEMAN

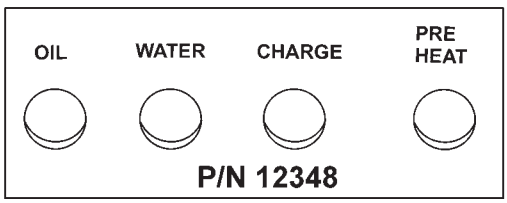
P/N 10818

DECAL DIESEL FUEL

DIESEL FUEL

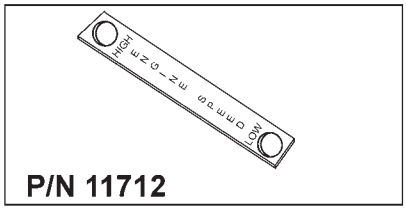
P/N 11811

DECAL INSTRUMENT LIGHT PLATE



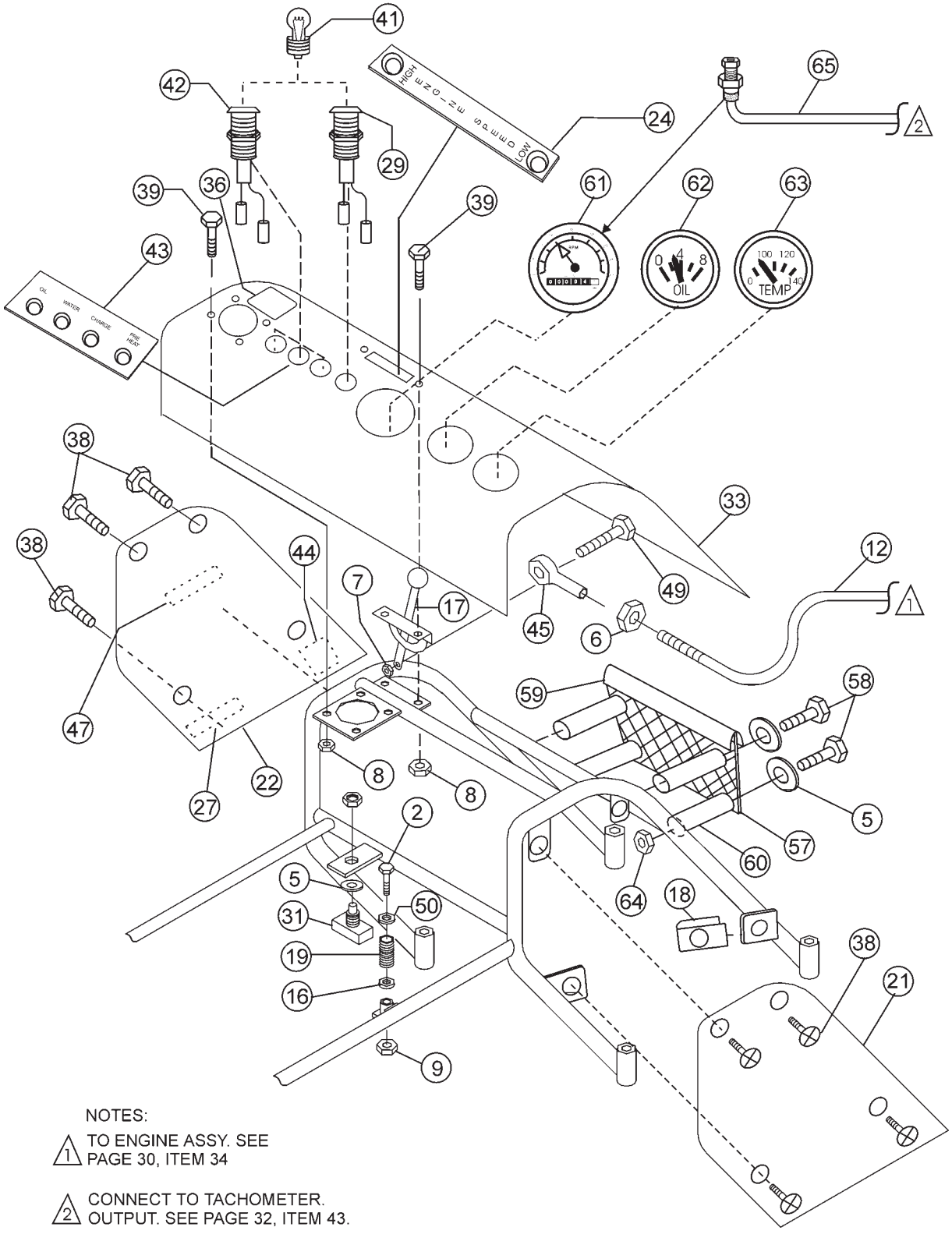
P/N 12348

DECAL ENGINE SPEED PLATE



P/N 11712

TOP PANEL (RIGHT)
VIEW FROM OPERATOR'S SEAT



NOTES:

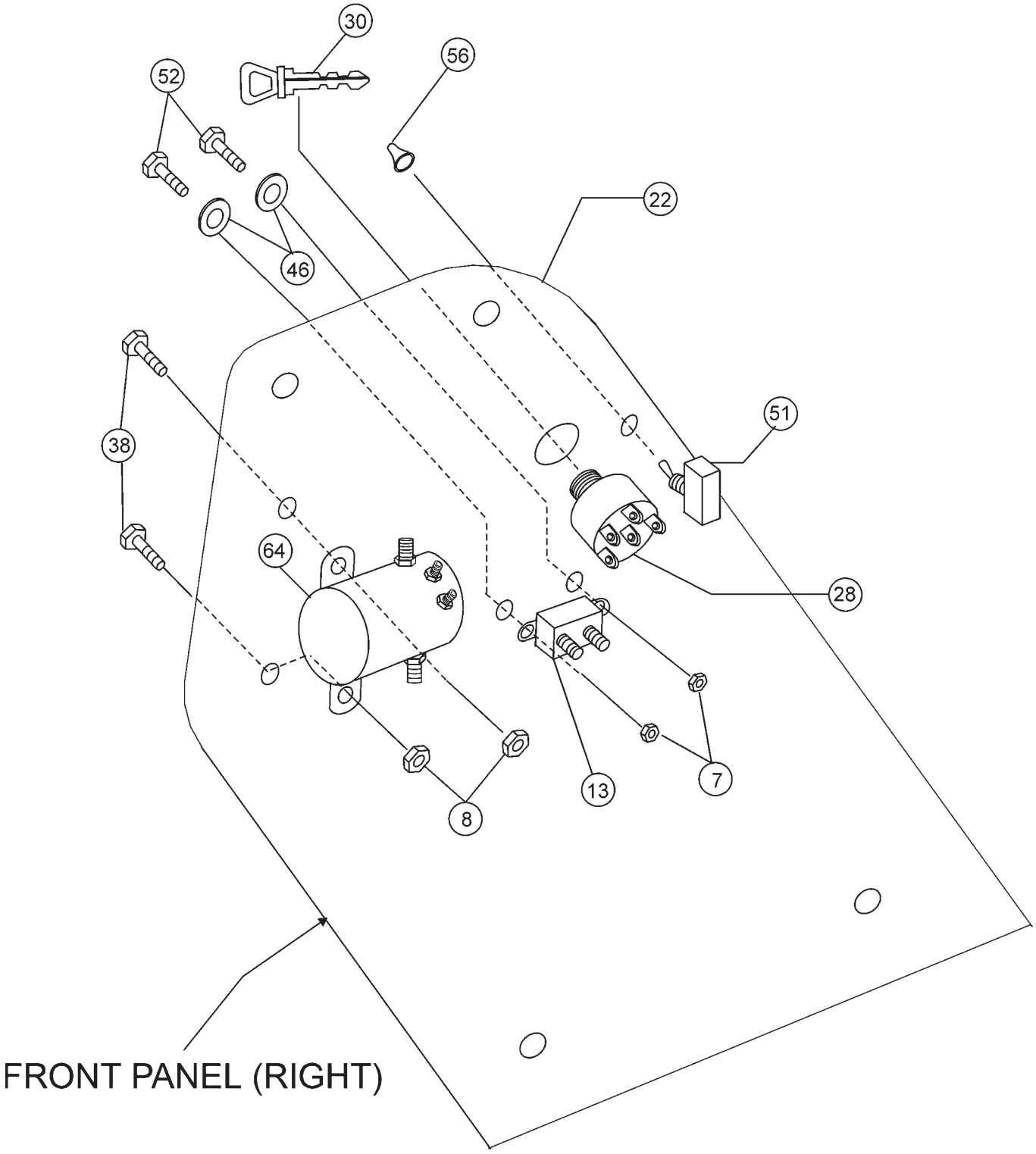
△1 TO ENGINE ASSY. SEE PAGE 30, ITEM 34

△2 CONNECT TO TACHOMETER. OUTPUT. SEE PAGE 32, ITEM 43.

TOP PANEL (RIGHT)

NO	PART NO	PART NAME	QTY.	REMARKS
2	0169	SCREW, HHC 3/8-16 X 3	1	
5	0447	WASHER, FLAT, 1/2 SAE	1	
6	0937	NUT, HEX 10-32	2	
7	10019	NUT, NYLOC 10-32	1	
8	10024	NUT, NYLOC 1/4-20	2	
9	10133	NUT, NYLOC 3/8-16	1	
12	10568	CABLE THROTTLE	1	
16	11265	WASHER, STEERING HANDLE	2	
17	11379	HANDLE THROTTLE CONTROL	1	
18	11534	NUT,“U” TYPE, 1/4-20	8	
19	11593	SPRING, SEAT (CENTURY #10321)	1	
21	11663	PANEL, REAR RIGHT	1	
22	11673	PANEL, FRONT RIGHT	1	
24	11712	DECAL, ENGINE SPEED PLATE	1	
27	11912	DECAL, “PATENT PENDING”	1	
29	JDRG60051	PLUG, PREHEAT LIGHT (BLUE)	1	
31	12005	SWITCH, KILL COLE – HER #90036-02	1	
33	12227	PANEL TOP, RIGHT	1	
36	12248	DECAL, TWIN PITCH	1	
38	12287	SCREW, THP 1/4 X 20 X 3/4 SS	8	
39	12288	SCREW, THP 1/4 X 20 X 1 SS	6	
41	GE#57	BULB, +12V DC	4	
42	JDRG60049	PLUG, OIL, WATER, CHARGE (RED)	3	
43	12348	DECAL INSTRUMENT LIGHT PLATE	1	
44	12401	DECAL, HYD OIL CAUTION	1	
45	2153	ROD END, 10-32 FEMALE RH	1	
47	2814	DECAL, LIGHT KEY SWITCH	1	
49	3513	SCREW, HHC 10-32 X 1	1	
50	4001	WASHER, FLAT, 3/8 USS PLD	1	
57	12240	COVER, OIL COOLER	1	
58	3043	SCREW, HHC 1/2 -13 X 6	4	
59	60049	TRIM EDGE, 1/32 (62B3-1/32)	1	
60	12053	SPCR, OIL COOLER 1" O.D. X 4 3/4	4	
61	JDRG60514	TACH /W HOUR METER	1	
62	JDRG60509	OIL GUAGE	1	
63	JDRG60504	TEMPERATURE GUAGE	1	
64	10176	NUT, NYLOC 1/2-13	4	
65	TC007	CABLE, TACH FT.	1	

VIEW FROM OPERATOR'S SEAT

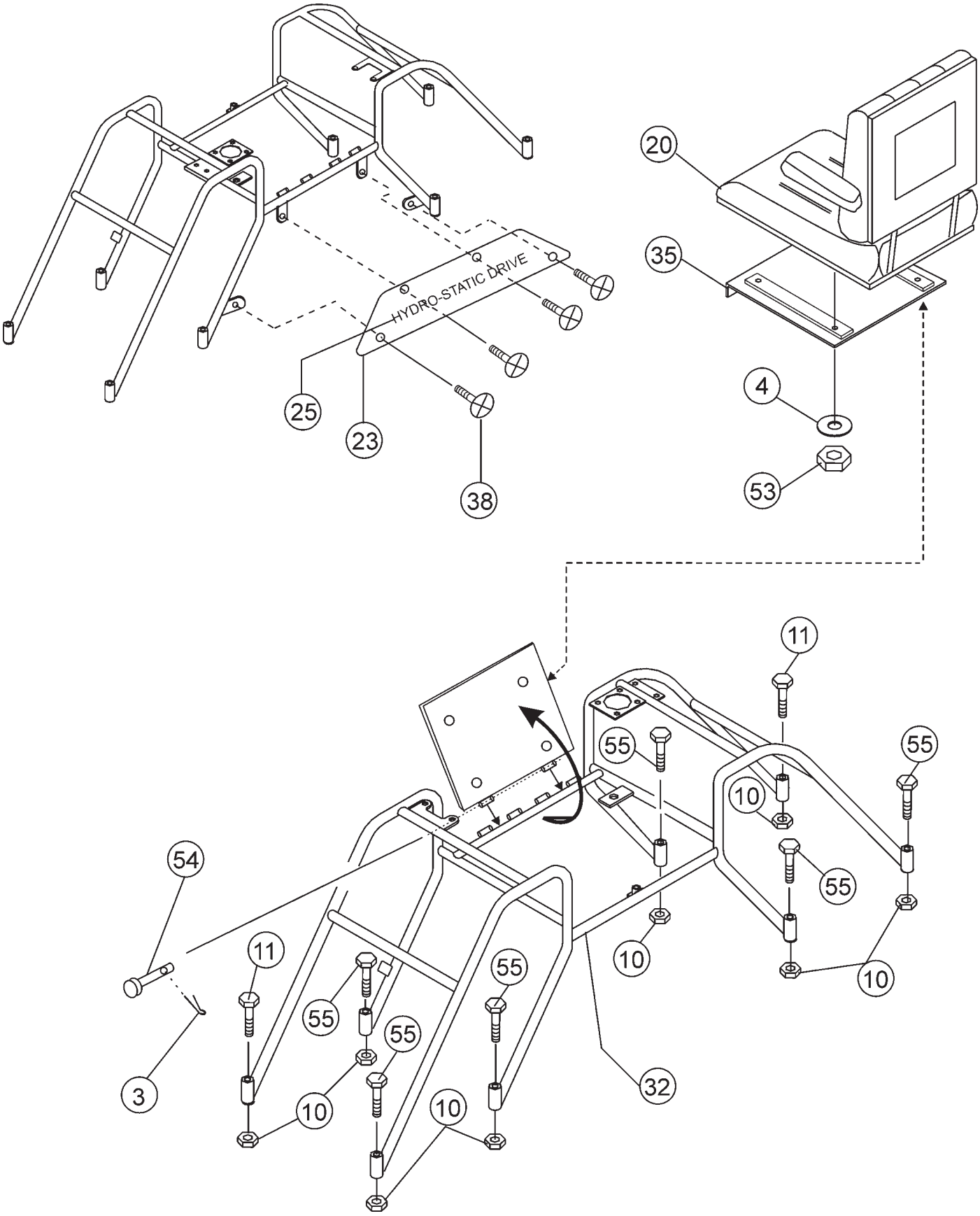


STH-55JD-TC — FRONT PANEL (RIGHT)

FRONT PANEL RIGHT

NO	PART NO	PART NAME	QTY.	REMARKS
7	10019	NUT, NYLOC 10-32	2	
8	10024	NUT, NYLOC 1/4-20	2	
13	11098	CIRCUIT BREAKER (40 AMP, 12V)	1	
22	11673	PANEL, FRONT RIGHT	1	
28	11924	IGNITION SWITCH WITH KEYS	1	INCLUDES ITEM W/*
30	12001*	KEYS, IGNITION SWITCH	1	
38	12287	SCREW, THP 1/4 X 20 X 3/4 SS	2	
46	2203	WASHER, FLAT #10	2	
51	4682	LIGHT SWITCH	1	
52	5065B	SCREW, RHM 10-32 X 1/2	2	
56	8381	BOOT, TOGGLE SWITCG	1	
64	11792	ACCESSORY SOLENOID	1	

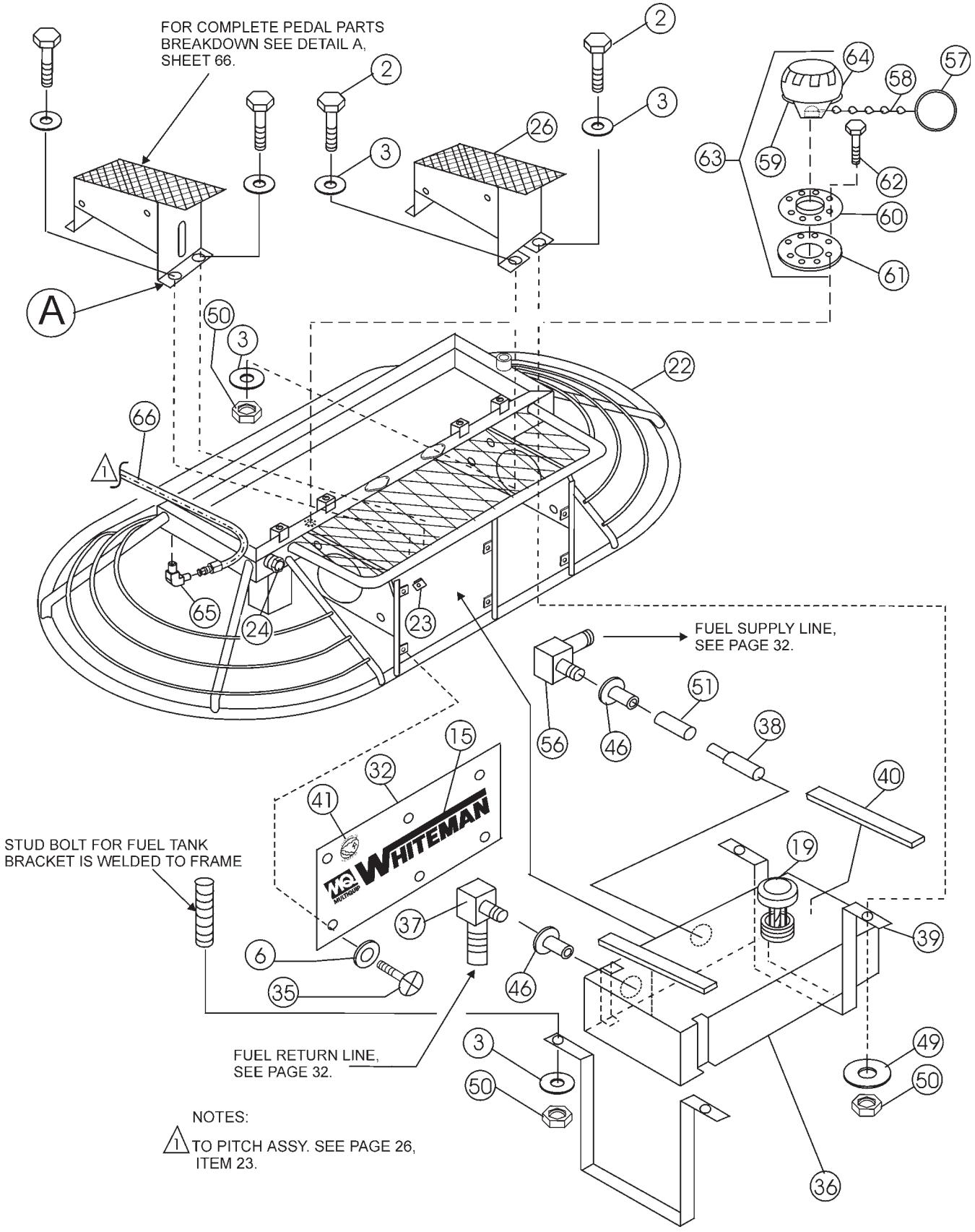
STH-55JD-TC — SEAT AND FRAME



SEAT AND FRAME

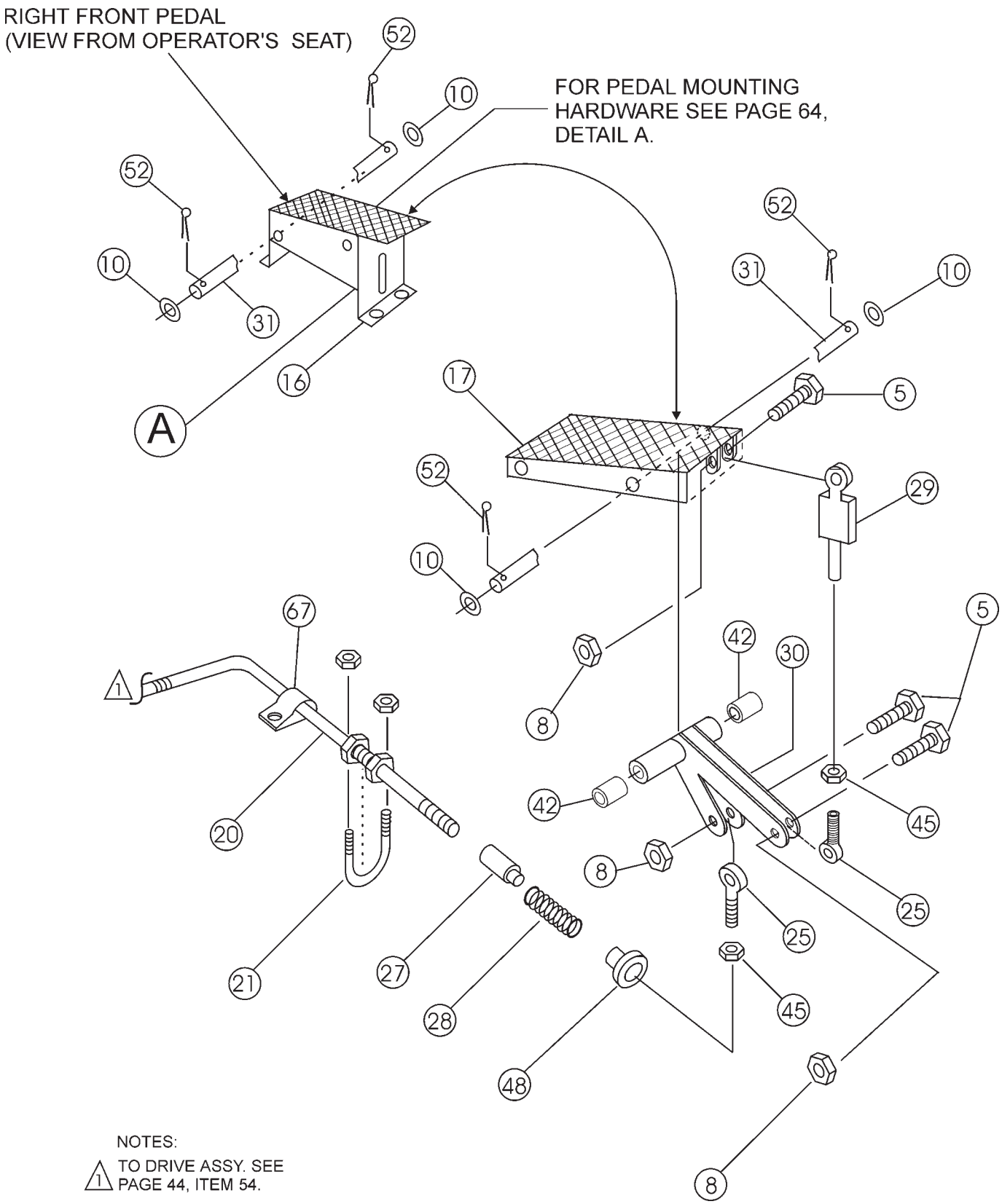
NO	PART NO	PART NAME	QTY.	REMARKS
3	0183	PIN, COTTER 1/8 X 1 1/4	1	
4	0300B	WASHER, FLAT, 5/16 SAE	4	
10	10176	NUT, NYLOC 1/2-13	8	
11	10306	SCREW, HHC 1/2 x 13 X 4 1/2	2	
20	11632	SEAT, MICHIGAN # V1025 W/ARMS	1	
23	11674	PANEL, FRONT CENTER	1	
25	11760	DECAL, FRONT PANEL “HYD-S DRV”	1	
32	12218	FRAME, SEAR W/A STH	1	
35	12230	PLATE, SEAT W/A	1	
38	12287	SCREW, THP 1/4 X 20 X 3/4 SS	4	
53	5283	NUT, NYLOC 5/16-18	4	
54	8081	PIN, CLEVIS 1/2 X 2 3/4	2	
55	8087	SCREW, HHC 1/2 X13 X 4	6	

STH-55JD-TC — FRAME AND FUEL TANK



FRAME AND FUEL TANK

NO	PART NO	PART NAME	QTY.	REMARK
2	0202	SCREW, HHC 5/16 – 18 X 1	4	
3	0300 B	WASHER, FLAT, 5/16 SAE	10	
6	0948	WASHER, FLAT, 1/4 SAE	16	
15	10818	DECAL, MQ WHITEMAN, 23 – 1/2"	1	
19	11418	FUEL CAP/GAUGE (10.5")	1	
22	11937	FRAME, COMPLETE W/A STH	1	
23	11534	NUT, "U" TYPE, 1/4 – 20	10	
24	11584	SIGHT GLASS, 3/4" MALE PIPE	1	
26	11628	FOOT REST, LEFT W/A	1	
32	11678	PANEL, FRONT STH/STH	1	
35	11819	SCREW, HHC 1/4 – 20 X 3/4 W/WASH	6	
36	11922	TANK, 12 GALLON FUEL POLYETHEL	1	
37	12007	FITTING, 90 4 BARB – 4 BARB FUEL	1	
38	12010	SCREEN, FILTER DAPCO 10656	1	
39	12021	BRACKET, FUEL TANK SUPPORT	2	
40	12025	SPACER, FUEL TANK	2	
41	13118	DECAL, "POWDER COATED"	1	
46	19633	BUSHING, RUBBER FUEL	2	
48	12235	ADAPTER, THROTT LE RETURN SPRING SHORT	1	
49	3233	WASHER, FENDER, 1.5 OD X 3/8 ID	4	
50	5283	NUT, NYLOC 5/16 – 18	6	
55	0166 A	3/8" LOCK WASHER	3	
56	12023	FITTING, 90 05 BARB – 4 BARB FUEL	1	
57	ZINFB08	CHAIN RING	1	
58	ZINFB15	NO 16 SINGLE JACK CHAIN	1	
59	12488	O-RING	1	
60	ZINFB04	BASE	1	
61	12489	FLANGE GASKET	1	
62	ZINPS0014	#10-32 1/2 SCREW	1	
63	12332	CAP ASSY, HYD 5PSI 10 MICRON	1	
64	ZINFB03	COVER, CAP	1	
65	12247	FITTING, 90 6MJ-3/8 MP	1	
66	12246	TUBE, HYD MANIFOLD DRAIN	1	

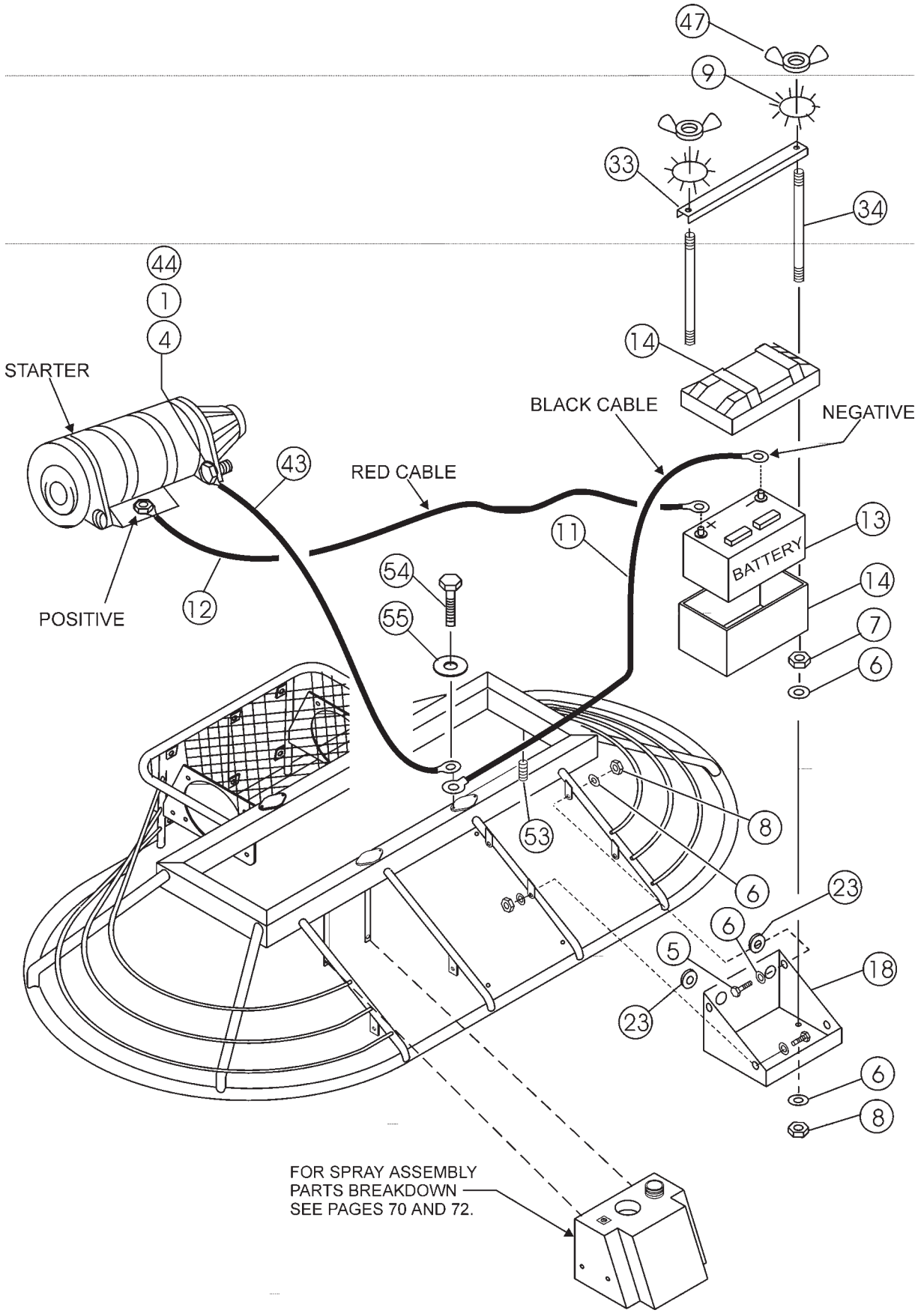


NOTES:

1 TO DRIVE ASSY. SEE PAGE 44, ITEM 54.

FOOT PEDALS

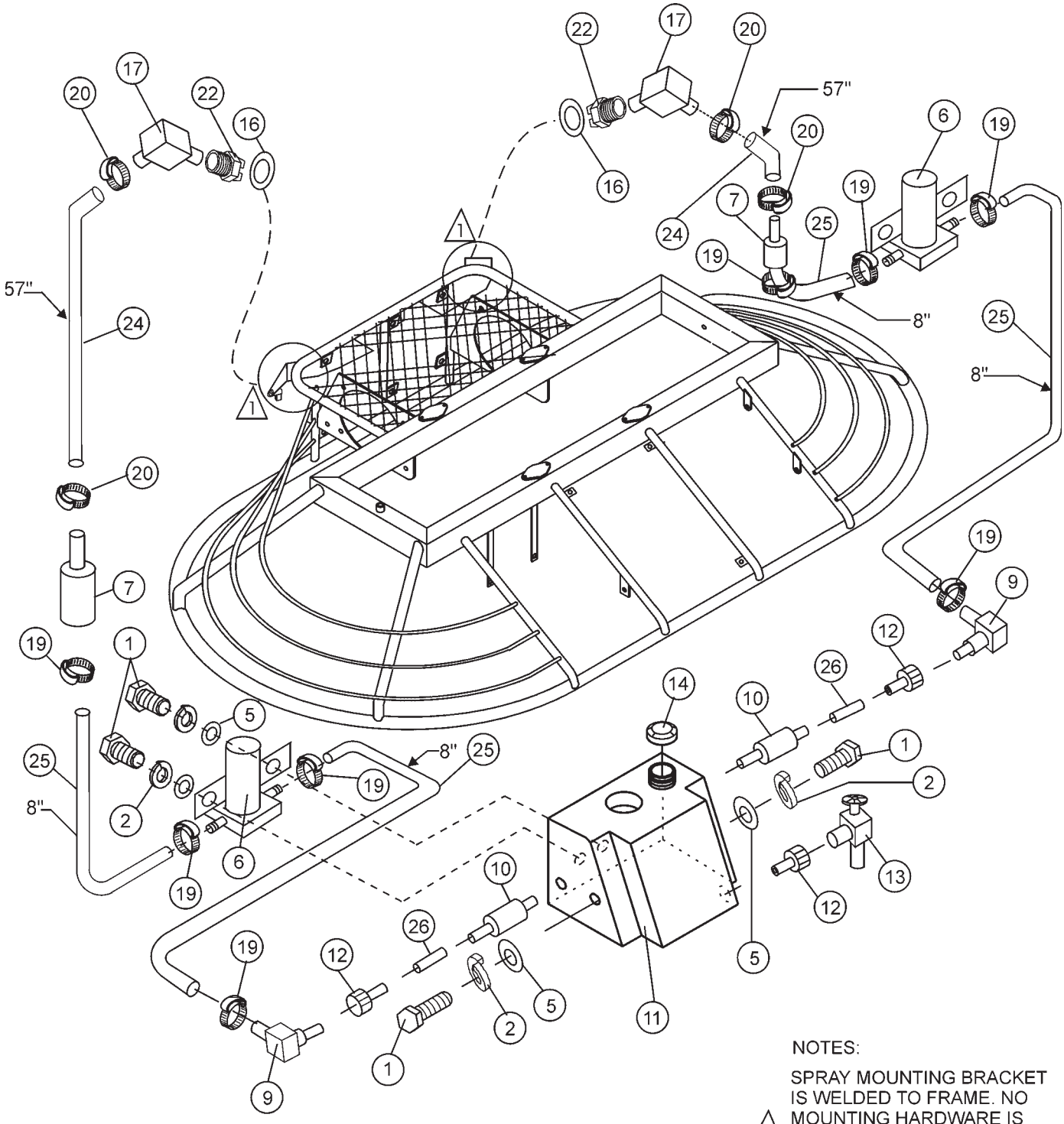
NO	PART NO	PART NAME	QTY.	REMARK
5	0730	SCREW, HHC 1/4 – 20 X 1	7	
8	10024	NUT, NYLOC 1/4 – 20	9	
10	10136	WASHER, FLAT, 3/8 SAE	4	
16	11199	BASE, SPEED CONTROL PEDAL W/A	1	
17	11228	ACCELERATOR PEDAL W/A	1	
20	11491	CABLE, FOOT PEDAL ASSY.	1	
21	11492	U-BOLT, CABLE	1	
25	11611	ROD END, 1/4 – 28 FEMALE RH	3	
27	11638	ADAPTER, SPEED CONTROL SPRING	1	
28	11641	SPRING, FOOTPEDAL, CEN # 11617	1	
29	11643	ROD END, 1/4 – 28 MALE RH	1	
30	11656	ROCKER, SPEED CONTROL W/A	1	
31	11677	PIN, SPEED CONTROL LEVER	2	
42	1484	BUSHING, BRONZE	2	
45	19378	NUT, HEX JAM 1/4 – 28	3	
48	12235	ADAPTER, THROTTLE RET. SPRING SHORT	1	
52	6014 B	PIN, COTTER 3/32 X 1	4	
67	8126	CLAMP, CABLE	1	


47
9
33
34
44
1
4
STARTER
14
BLACK CABLE
NEGATIVE
43
RED CABLE
11
13
BATTERY
54
14
55
7
POSITIVE
12
6
8
53
6
23
6
5
18
23
6
8
FOR SPRAY ASSEMBLY
PARTS BREAKDOWN
SEE PAGES 70 AND 72.

BATTERY

NO	PART NO	PART NAME	QTY.	REMARK
1	0161 C	WASHER, LOCK, 5/16 MED.	1	
4	0479	WASHER, EXT. SHKP, 3/8 PLTD	1	
5	0730	SCREW, HHC 1/4 – 20 X 1	4	
6	0948	WASHER, FLAT, 1/4 SAE	8	
7	0949	NUT, HEX FINISH 1/4 – 20	4	
8	10024	NUT, NYLOC 1/4 – 20	6	
9	10031	WASHER, EXT. SHKP, 1/4	2	
11	12278	CABLE, NEG BATTERY BLACK 32”	1	
12	10314	CABLE, POS BATTERY RED 31”	1	
13	10315	BATTERY, 12V WET GROUP 22 SRT	1	
14	10318	BATTERY BOX, GROUP 24	1	
23	13212	GROMMET, 1 1/4 I.D. (MINOR Z-714)	2	
33	11692	BRACKET, BATTERY BOX HOLD DOWN	1	
34	11693	BOLT, BATTERY BRKT	2	
43	1597	CABLE, ASM, BLK (NEG) 16.5”	1	
44	2866	SCREW, HHC M8 – 1.25 X 25 MM	1	
47	2509	NUT, WING 1/4 – 20 PLATED	2	
53	911329	FITTING, PLUG 3/8 MP MAGNET	1	
54	11691	HHCS 3/8 – 24 X 3/4	1	
55	0166A	LOCKWASHER, 3/8"	1	

STH-55JD-TC — SPRAY ASSY ABOVE S/N ID60204

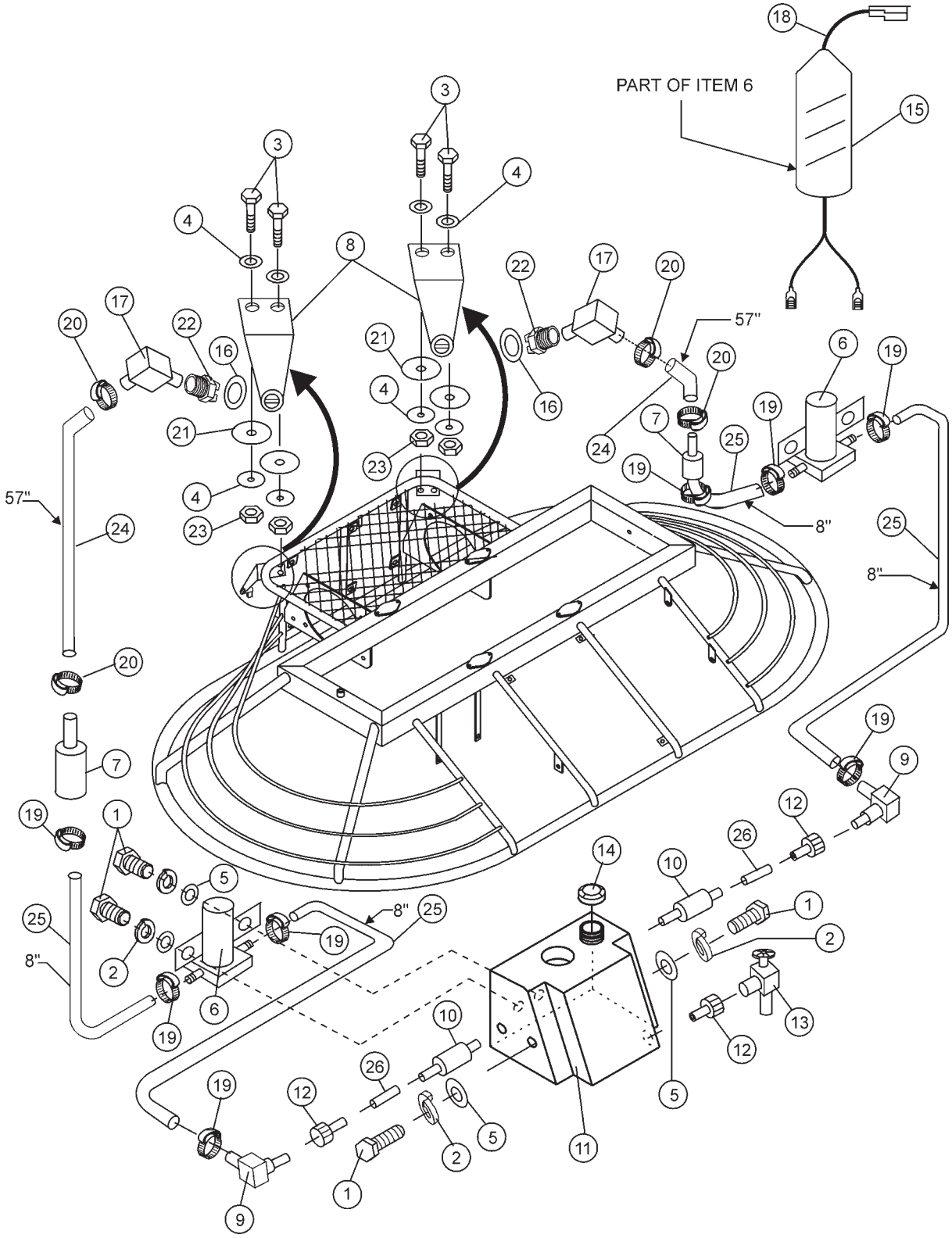


STH-55JD-TC — SPRAY ASSY ABOVE S/N ID60204

SPRAY ASSY ABOVE S/N ID60204

NO	PART NO	PART NAME	QTY.	REMARKS
1	0131 A	SCREW, HHC 1/4-20 X 3/4	5	
2	0181 B	WASHER, LOCK, 1/4 MED	5	
5	0948	WASHER, FLAT, 1/4 SAE	6	
6	12628	PUMP, SPRAY KIT	2	
7	10022	FITTING, PLASTIC 6 BARB – 4 BARB	1	
9	12008	FITTING, 90 6 BARB – 4 BARB FUEL	1	
10	12009	SCREEN, FILTER	1	
11	12036	TANK, RETARDANT 5 GALLON	1	
12	19633	BUSHING, RUBBER FUEL	2	
13	19661	VALVE, FUEL DRAIN	1	
14	2108	CAP, SPRAY TANK	1	
16	2898	WASHER, BONDED NEOPRENE 1 X 1/2	1	
17	2912	FITTING, 90 4 BARB –1/4 FP	1	
19	2918	CLAMP, HOSE, 475 - 536 ID	4	
20	2930	CLAMP, HOSE, 360 - 410 ID	2	
22	392292	NOZZLE, SPRAY	1	
23	5283	NUT, NYLOC 5/16-18	2	
24	60001	HOSE, 25 ID X 375 OD	10 FT	
25	60002	HOSE, 375 ID X 5 OD	32"	
26	60058	HOSE, 1/4 X 3/8 PVC FUEL YELLOW	4"	

STH-55JD-TC — SPRAY ASSY BELOW S/N ID60205



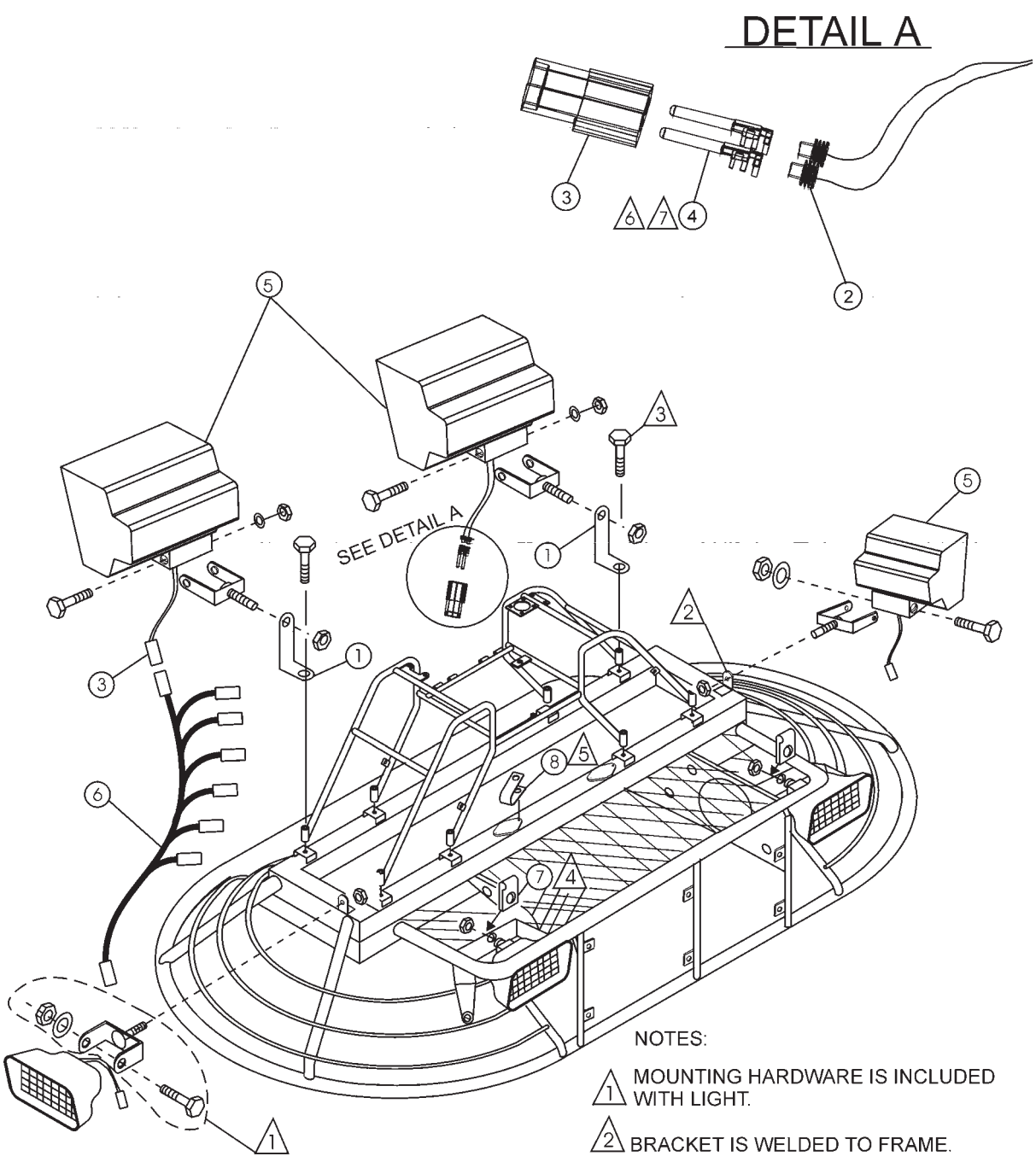
STH-55JD-TC — SPRAY ASSY BELOW S/N ID60205

SPRAY ASSY BELOW S/N ID60205

NO	PART NO	PART NAME	QTY.	REMARKS
1	0131 A	SCREW, HHC 1/4-20 X 3/4	5	
2	0181 B	WASHER, LOCK, 1/4 MED	5	
3	0202	SCREW, HHC 5/16-18 X 1	2	
4	0300 B	WASHER, FLAT, 5/16 SAE	4	
5	0948	WASHER, FLAT, 1/4 SAE	6	
6	10021	PUMP, SPRAY KIT (OLD STYLE)	1	INCLS ITEM W/* SEE NOTE
7	10022	FITTING, PLASTIC 6 BARB – 4 BARB	1	
8	11222	MOUNT, SPRAY NOZZLE, W/NEW STR	1	
9	12008	FITTING, 90 6 BARB – 4 BARB FUEL	1	
10	12009	SCREEN, FILTER	1	
11	12036	TANK, RETARDANT 5 GALLON	1	
12	19633	BUSHING, RUBBER FUEL	2	
13	19661	VALVE, FUEL DRAIN	1	
14	2108	CAP, SPRAY TANK	1	
15*	2816	COVER, SPRAY MOTOR	1	FOR S/N BELOW ID60205
16	2898	WASHER, BONDED NEOPRENE 1 X 1/2	1	
17	2912	FITTING, 90 4 BARB –1/4 FP	1	
18*	2915	WIRE ASSY, PUMP	1	FOR S/N BELOW ID60205
19	2918	CLAMP, HOSE, 475 - 536 ID	4	
20	2930	CLAMP, HOSE, 360 - 410 ID	2	
21	3233	WASHER, FENDER, 15 OD X 3/8 ID	2	
22	392292	NOZZLE, SPRAY	1	
23	5283	NUT, NYLOC 5/16-18	2	
24	60001	HOSE, 25 ID X 375 OD	10 FT.	
25	60002	HOSE, 375 ID X 5 OD	32"	
26	60058	HOSE, 1/4 X 3/8 PVC FUEL YELLOW	4"	

NOTE:
When ordering Spray Kit Pump Assembly use P/N 12548 (new style). This part number replaces P/N 10021 (old style).

STH-55JD-TC — LIGHT ASSY ABOVE S/N ID60204



NOTES:

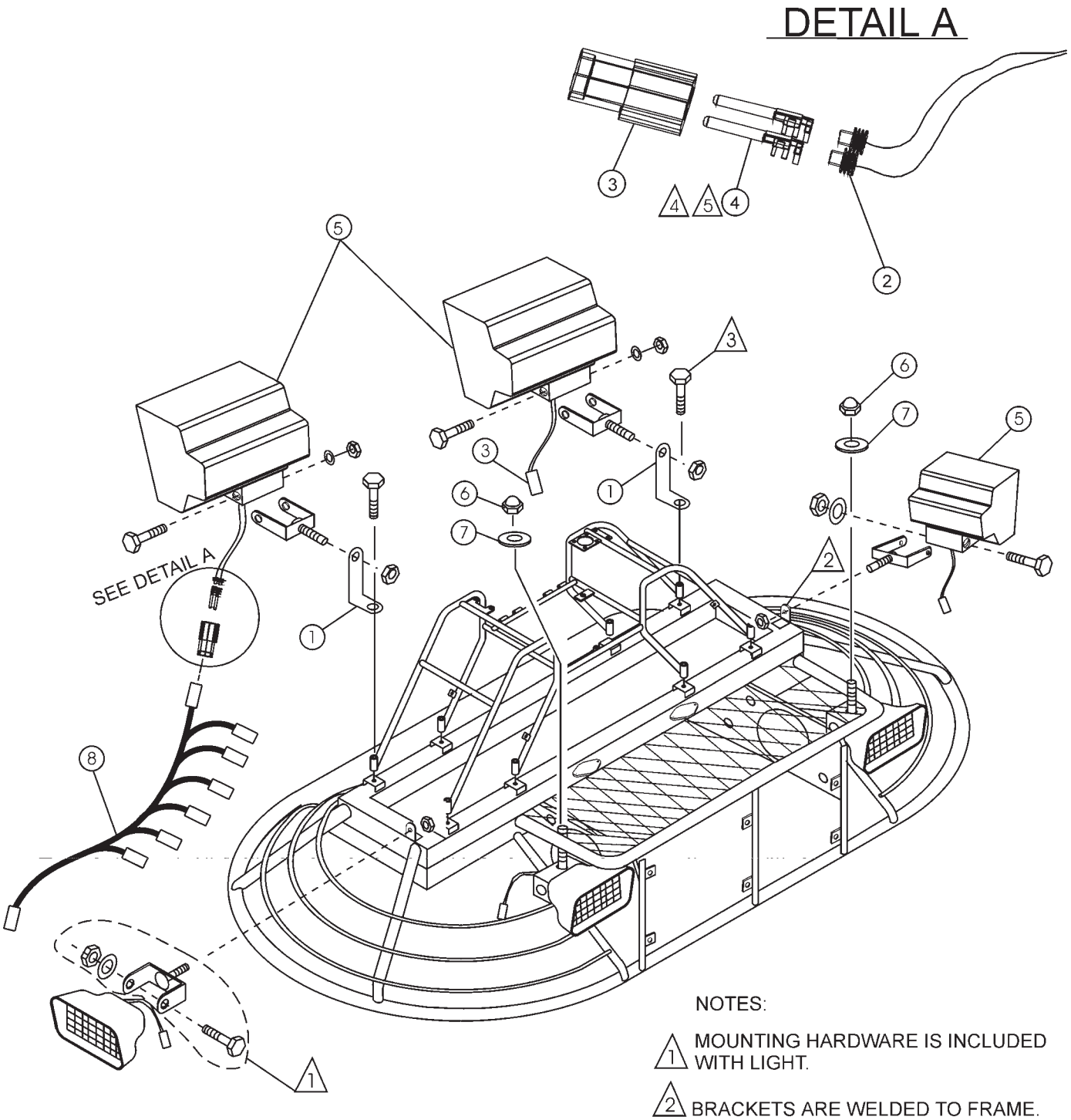
1. MOUNTING HARDWARE IS INCLUDED WITH LIGHT.
2. BRACKET IS WELDED TO FRAME.
3. SCREW IS PART OF SEAT FRAME. ASSY., SEE PAGE 62, ITEM 11.
4. MOUNT CLAMP WITH LIGHT HARDWARE.
5. CLAMP IS FOR WIRE HARNESS.
6. REQUIRES HAND CRIMP TOOL WAYTEK P/N 402 OR PACKARD P/N GM 12014254.
7. WHEN REMOVING WIRE USE TERMINAL EXTRACTION TOOL WAYTEK P/N 421.

STH-55JD-TC — LIGHT ASSY ABOVE S/N ID60204

LIGHT ASSY ABOVE S/N ID60204

NO	PART NO	PART NAME	QTY.	REMARKS
1	10320	BRACKET, LIGHT	2	
2	12171	SEAL, WEATHERPACK 16-18 GA	12	
3	12176	CONNECTOR, WEATHERPACK 2-PIN	6	
4	12179	TERMINAL, MALE 14-16 GA	12	
5	2532	LIGHT, RECTANGULAR	6	
6	12418	WIRE ASSY., STH LIGHT	1	
7	8128	CLAMP, HOSE SUPPORT, 5/16	2	
8	8125	CLAMP, HOSE SUPPORT, 5/8	1	

STH-55JD-TC — LIGHT ASSY BELOW S/N ID60205



NOTES:

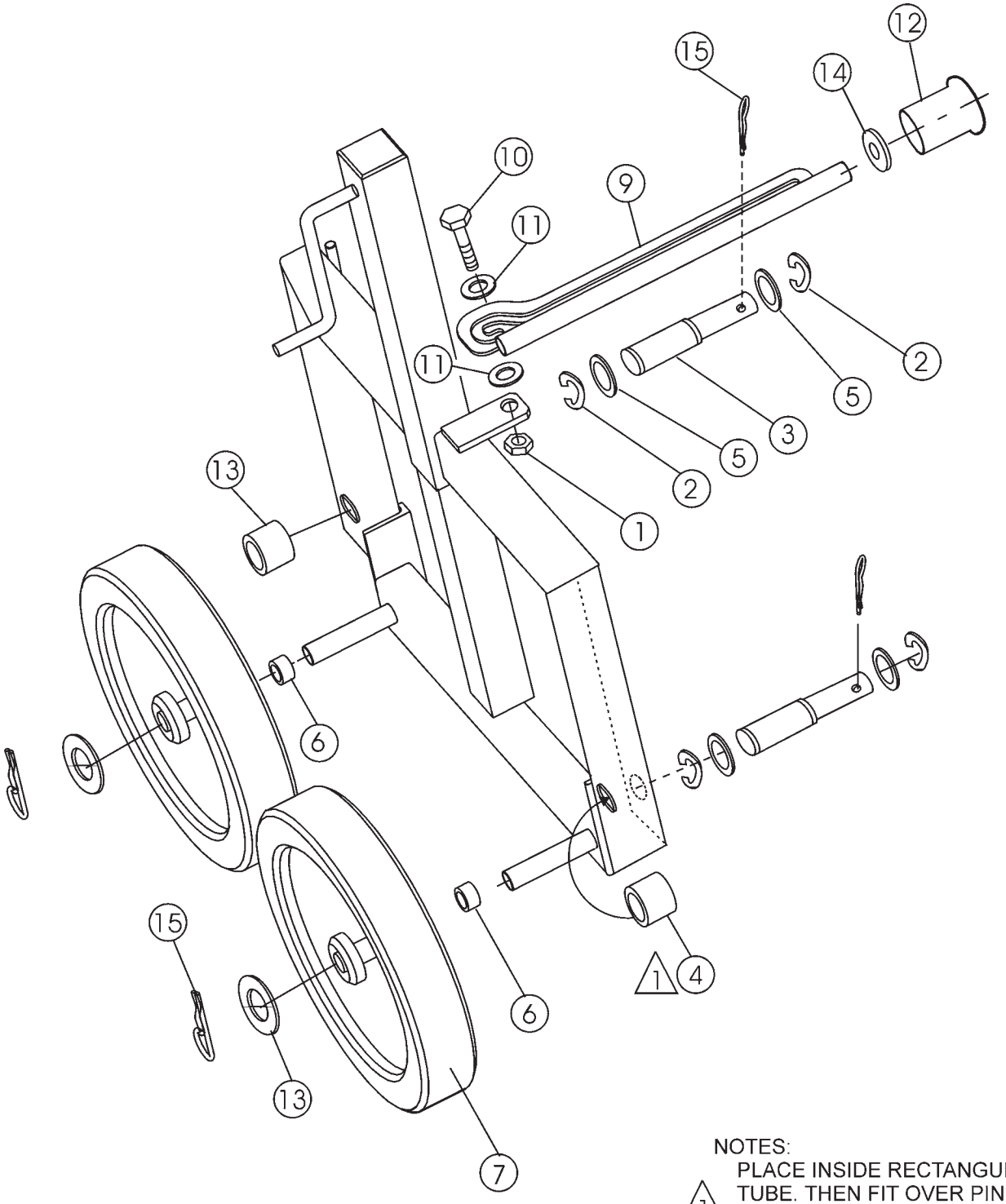
1. MOUNTING HARDWARE IS INCLUDED WITH LIGHT.
2. BRACKETS ARE WELDED TO FRAME.
3. SCREW IS PART OF SEAT FRAME. ASSY., SEE PAGE 62, ITEM 11.
4. REQUIRES HAND CRIMP TOOL WAYTEK P/N 402 OR PACKARD P/N GM 12014254.
5. WHEN REMOVING WIRE USE TERMINAL EXTRACTION TOOL WAYTEK P/N 421.

STH-55JD-TC — LIGHT ASSY BELOW S/N ID60205

LIGHT ASSY BELOW S/N ID60205

NO	PART NO	PART NAME	QTY.	REMARKS
1	10320	BRACKET, LIGHT	2	
2	12171	SEAL, WEATHERPACK 16-18 GA	12	
3	12176	CONNECTOR, WEATHERPACK 2-PIN	6	
4	12179	TERMINAL, MALE 14-16 GA	12	
5	2532	LIGHT, RECTANGULAR	6	
6	5287	NUT, NYLOC 5/16-18	2	
7	3233	WASHER,FENDER, 1.5 O.D. X 3/8 I.D.	2	
8	12418	WIRE ASSY, STH LIGHT	1	

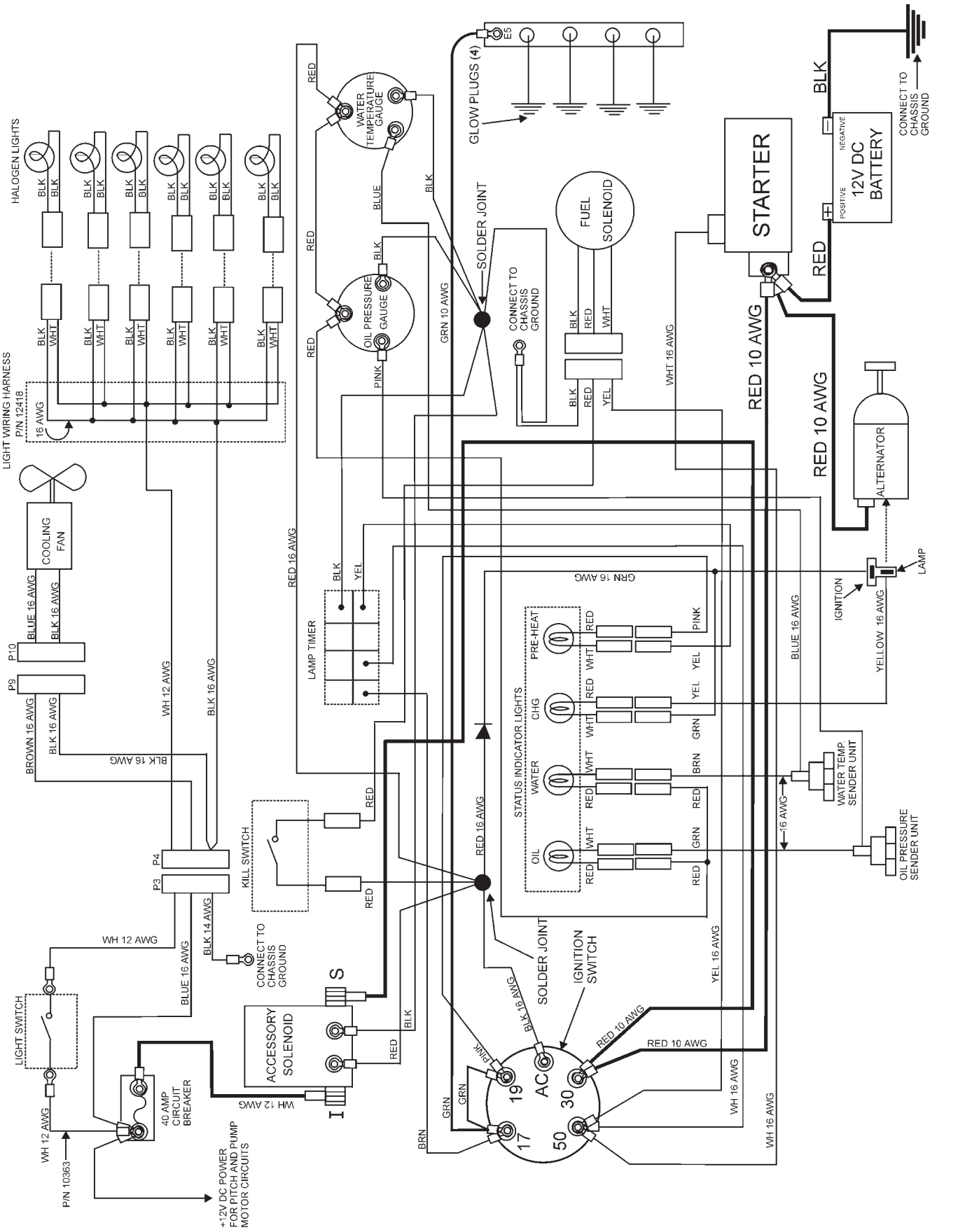
STH-55JD-TC — E-Z MOVER AND LIFT HANDLE

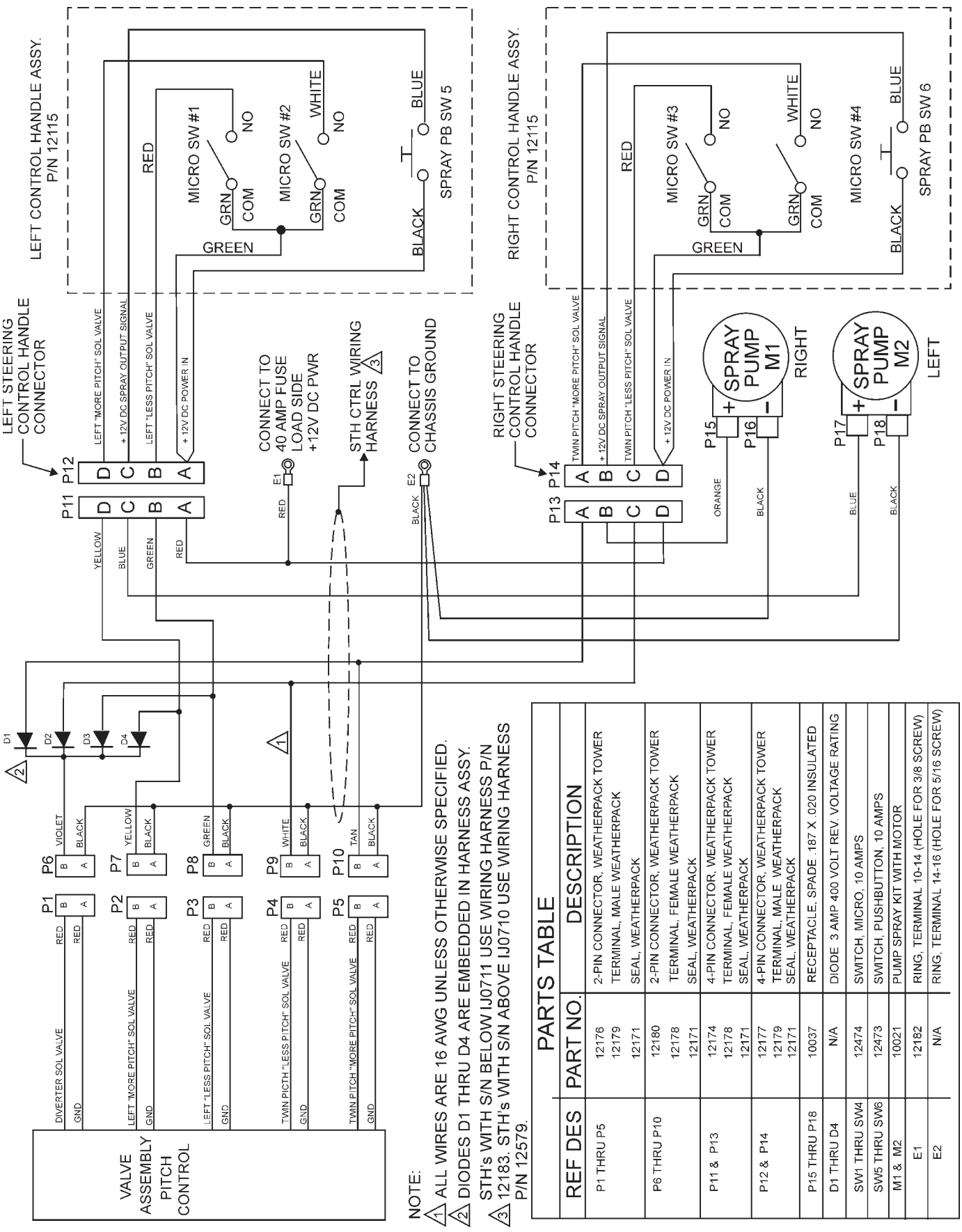


NOTES:
1. PLACE INSIDE RECTANGULAR TUBE. THEN FIT OVER PIN PART NUMBER 11810

E-Z MOVER AND LIFT HANDLE

NO	PART NO	PART NAME	QTY.	REMARKS
1.	10176	NYLOC NUT 1/2-13	1	
2.	1138	RING, SNAP	4	
3.	11810	PIN STH FRAME	2	
4.	12280	SPACER, SIDE MOUNT	2	
5.	12284	SHIM, FRAME PIN	4	
6.	12285	SPACER, WHEEL	2	
7.	12333	TIRE, EZ MOVER	2	
8.	12334	JACK, EZ MOVER W/A	1	
9.	12352	ARM, EZ MOVER W/A	1	
10.	16526	SCREW HHC 1/2-13X1 3/4	1	
11.	16630	WASHER, FLAT 1/2 SAE HARD	2	
12.	19716	CRUTCH TIP	1	
13.	3264	WASHER, FLAT 1 SAE PLTD	2	
14.	4001	WASHER, FLAT 3/8 PLTD STD	1	
15.	7170	PIN, COTTER 5/32	4	


HALOGEN LIGHTS
LIGHT WIRING HARNESS
P/N 12418
16 AWG
COOLING FAN
BLUE 16 AWG
BLK 16 AWG
P10
P9
BROWN 16 AWG
BLK 15 AWG
WH 12 AWG
BLK 16 AWG
P4
P3
KILL SWITCH
RED
BLK 14 AWG
CONNECT TO CHASSIS GROUND
LIGHT SWITCH
WH 12 AWG
BLUE 16 AWG
40 AMP CIRCUIT BREAKER
P/N 10363
+12V DC POWER FOR PITCH AND PUMP MOTOR CIRCUITS
ACCESSORY SOLENOID
S
I
WH 12 AWG
BLK
RED
LAMP TIMER
BLK
YEL
RED 16 AWG
WATER TEMPERATURE GAUGE
OIL PRESSURE GAUGE
PINK
BLUE
GRN 10 AWG
SOLDER JOINT
CONNECT TO CHASSIS GROUND
GLOW PLUGS (4)
E5
FUEL SOLENOID
BLK
RED
WHT
YEL
WHT 16 AWG
STARTER
RED 10 AWG
RED
BLK
NEGATIVE
POSITIVE
12V DC BATTERY
CONNECT TO CHASSIS GROUND
ALTERNATOR
LAMP
IGNITION
YELLOW 16 AWG
BLUE 16 AWG
GRN 16 AWG
STATUS INDICATOR LIGHTS
PRE-HEAT
CHG
WATER
OIL
PINK
YEL
GRN
BRN
WATER TEMP. SENDER UNIT
OIL PRESSURE SENDER UNIT
16 AWG
SOLDER JOINT
IGNITION SWITCH
BLK 16 AWG
YEL 16 AWG
RED 10 AWG
WH 16 AWG
AC
19
30
17
50
PINK
GRN
BRN



PARTS TABLE

REF DES	PART NO.	DESCRIPTION
P1 THRU P5	12176	2-PIN CONNECTOR, WEATHERPACK TOWER
	12179	TERMINAL, MALE WEATHERPACK
	12171	SEAL, WEATHERPACK
P6 THRU P10	12180	2-PIN CONNECTOR, WEATHERPACK TOWER
	12178	TERMINAL, FEMALE WEATHERPACK
	12171	SEAL, WEATHERPACK
P11 & P13	12174	4-PIN CONNECTOR, WEATHERPACK TOWER
	12178	TERMINAL, FEMALE WEATHERPACK
	12171	SEAL, WEATHERPACK
P12 & P14	12177	4-PIN CONNECTOR, WEATHERPACK TOWER
	12179	TERMINAL, MALE WEATHERPACK
	12171	SEAL, WEATHERPACK
P15 THRU P18	10037	RECEPTACLE, SPADE .187 X .020 INSULATED
D1 THRU D4	N/A	DIODE 3 AMP 400 VOLT REV. VOLTAGE RATING
SW1 THRU SW4	12474	SWITCH, MICRO, 10 AMPS
SW5 THRU SW6	12473	SWITCH, PUSHBUTTON, 10 AMPS
M1 & M2	10021	PUMP SPRAY KIT WITH MOTOR
E1	12182	RING, TERMINAL 10-14 (HOLE FOR 3/8 SCREW)
E2	N/A	RING, TERMINAL 14-16 (HOLE FOR 5/16 SCREW)

TERMS AND CONDITIONS OF SALE — PARTS

PAYMENT TERMS

Terms of payment for parts are net 10 days.

FREIGHT POLICY

All parts orders will be shipped collect or prepaid with the charges added to the invoice. All shipments are F.O.B. point of origin. Multiquip's responsibility ceases when a signed manifest has been obtained from the carrier, and any claim for shortage or damage must be settled between the consignee and the carrier.

MINIMUM ORDER

The minimum charge for orders from Multiquip is $15.00 net. Customers will be asked for instructions regarding handling of orders not meeting this requirement.

RETURNED GOODS POLICY

Return shipments will be accepted and credit will be allowed, subject to the following provisions:

1. A Returned Material Authorization must be approved by Multiquip prior to shipment.
2. To obtain a Return Material Authorization, a list must be provided to Multiquip Parts Sales that defines item numbers, quantities, and descriptions of the items to be returned.
    a. The parts numbers and descriptions must match the current parts price list.
    b. The list must be typed or computer generated.
    c. The list must state the reason(s) for the return.
    d. The list must reference the sales order(s) or invoice(s) under which the items were originally purchased.
    e. The list must include the name and phone number of the person requesting the RMA.
3. A copy of the Return Material Authorization must accompany the return shipment.
4. Freight is at the sender's expense. All parts must be returned freight prepaid to Multiquip's designated receiving point.
5. Parts must be in new and resalable condition, in the original Multiquip package (if any), and with Muiltiquip part numbers clearly marked.
6. The following items are not returnable:
    a. Obsolete parts. (If an item is listed in the parts price book as being replaced by another item, it is obsolete.)
    b. Any parts with a limited shelf life (such as gaskets, seals, "O" rings, and other rubber parts) that were purchased more than six months prior to the return date.
    c. Any line item with an extended dealer net price of less than $5.00.
    d. Special order items.
    e. Electrical components.
    f. Paint, chemicals, and lubricants.
    g. Decals and paper products.
    h. Items purchased in kits.
7. The sender will be notified of any material received that is not acceptable.
8. Such material will be held for 5 working days from notification, pending instructions. If a reply is not received within 5 days, the material will be returned to the sender at his expense.
9. Credit on returned parts will be issued at dealer net price at time of the original purchase, less a 15% restocking charge.
10. In cases where an item is accepted for which the original purchase document can not be determined, the price will be based on the list price that was effective twelve months prior to the RMA date.
11. Credit issued will be applied to future purchases only.

PRICING AND REBATES

Prices are subject to change without prior notice. Price changes are effective on a specific date and all orders received on or after that date will be billed at the revised price. Rebates for price declines and added charges for price increases will not be made for stock on hand at the time of any price change.

Multiquip reserves the right to quote and sell direct to Government agencies, and to Original Equipment Manufacturer accounts who use our products as integral parts of their own products.

SPECIAL EXPEDITING SERVICE

A $20.00 to $50.00 surcharge will be added to the invoice for special handling including bus shipments, insured parcel post or in cases where Multiquip must personally deliver the parts to the carrier.

LIMITATIONS OF SELLER'S LIABILITY

Multiquip shall not be liable here under for damages in excess of the purchase price of the item with respect to which damages are claimed, and in no event shall Multiquip be liable for loss of profit or good will or for any other special, consequential or incidental damages.

LIMITATION OF WARRANTIES

No warranties, express or implied, are made in connection with the sale of parts or trade accessories nor as to any engine not manufactured by Multiquip. Such warranties made in connection with the sale of new, complete units are made exclusively by a statement of warranty packaged with such units, and Multiquip neither assumes not authorizes any person to assume for it any other obligation or liability whatever in connection with the sale of its products. A part from such written statement of warranty, there are no warranties, express, implied or statutory, which extend beyond the description of the products on the face hereof.

NOTE PAGE

PARTS AND OPERATION MANUAL

HERE'S HOW TO GET HELP

PLEASE HAVE THE MODEL AND SERIAL NUMBER ON-HAND WHEN CALLING

PARTS DEPARTMENT
800-427-1244 or 310-537-3700
FAX: 800-672-7877 or 310-637-3284

SERVICE DEPARTMENT/TECHNICAL ASSISTANCE
800-478-1244 or 310-537-3700
FAX: 310- 537-4259

WARRANTY DEPARTMENT
888-661-4279, or 310-661-4279
FAX: 310- 537-1173

MAIN
800-421-1244 or 310-537-3700
FAX: 310-537-3927

MULTIQUIP

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CARSON, CA 90749
310-537-3700 • 800-421-1244
FAX: 310-537-3927
E-MAIL: mq@multiquip.com
WWW: multiquip.com