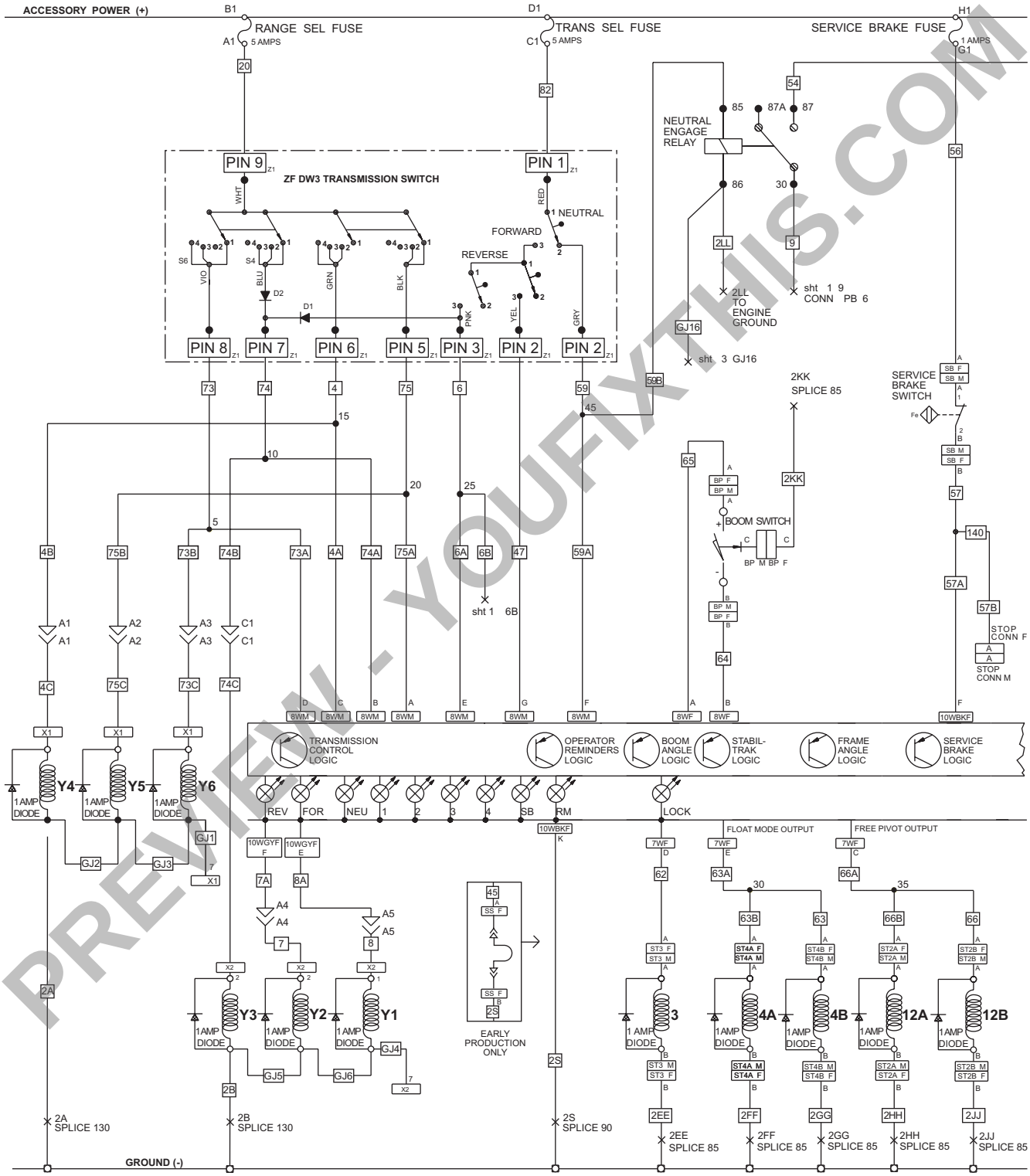
10.7.6 Main Electrical Schematic (Sheet 1 of 4)



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9.7 HYDRAULIC SYSTEM TESTING

9.7.1 4266/4270/4290 Hydraulic Testing

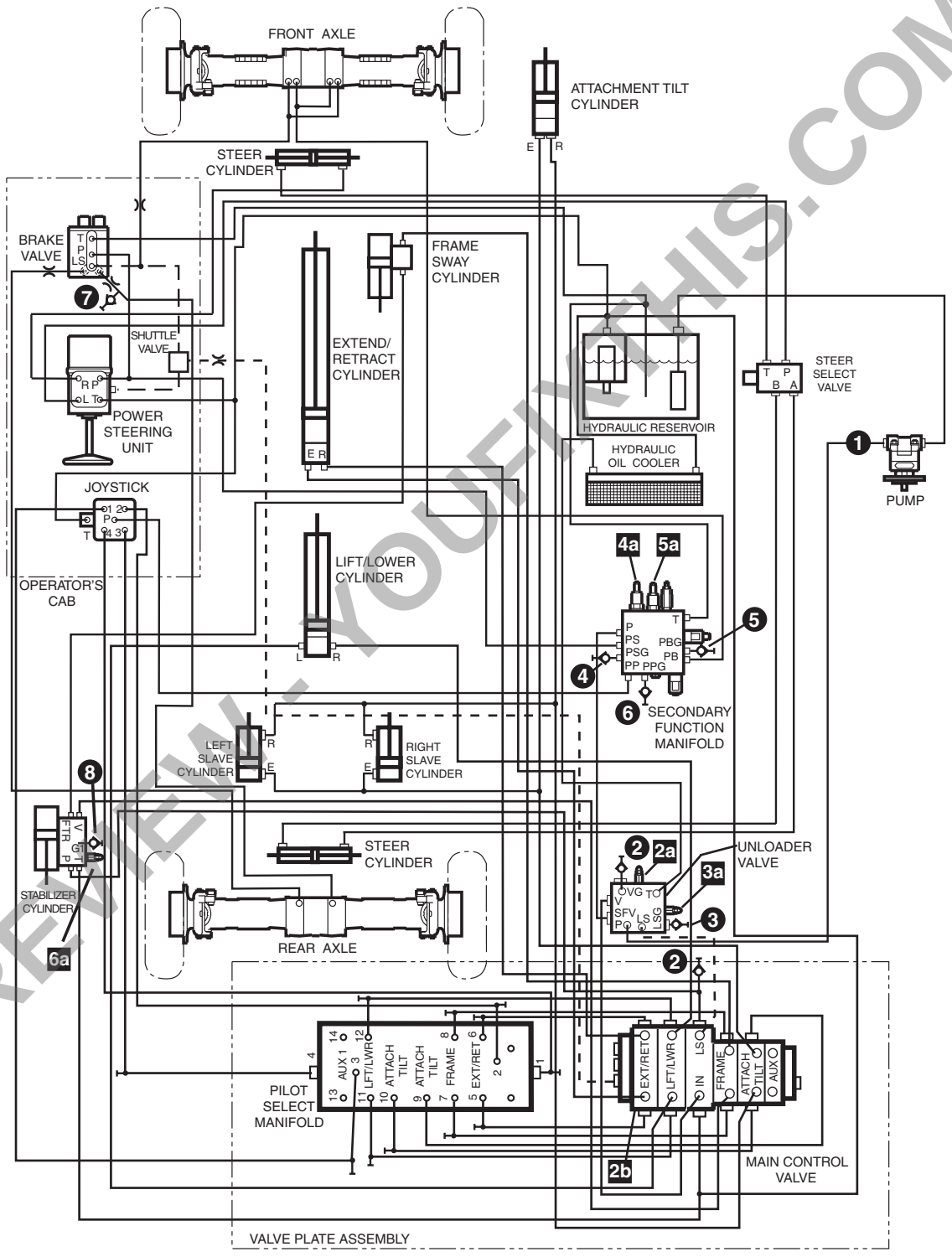


Figure 9-5 4266/4270/4290 hydraulics testing.

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2.3 TORQUES

2.3.1 Fasteners

All fasteners (nuts, bolts, washers, etc.) are equal to SAE Grade 5 (PC8.8) and are plated, unless otherwise specified.

2.3.2 Bolts and Nuts

Unless otherwise specified, the following values apply for Grade 5 (PC8.8) nuts and bolts:

Size	Torque		Size	Torque	
Inch	lb/ft	Nm	mm	Nm	lb/ft
1/4	9	12	6.0	10	7
5/16	17	24	8.0	25	18
3/8	31	42	10.0	50	37
7/16	50	68	--	--	--
1/2	75	102	12.0	80	59
9/16	110	150	14.0	130	95
5/8	150	203	16.0	200	146
3/4	250	340	20.0	360	263
7/8	380	515	22.0	510	372
1.0	585	793	24.0	650	475

2.3.3 Straight Thread O-ring Fitting (Non-Adjustable)

When the vehicle leaves the factory, it is equipped only with straight thread o-ring fittings. Customer-added accessories may differ; therefore, consult the manufacturer's product literature for information.

1. Verify that both threads and sealing surfaces are free of burrs, nicks, scratches, and any foreign material.
2. Lubricate the new o-ring with a light coating of hydraulic oil.
3. Tighten fitting to the proper torque according to the following chart:

SAE Size	Torque	
	lb/ft	Nm
4	15-17	20-23
6	34-36	46-49
8	58-62	79-84
10	100-110	136-149
12	134-146	181-198
16	202-218	274-296
20	248-272	336-369
24	303-327	411-443

2.3.4 Straight Thread O-ring Fitting (Adjustable)

When the vehicle leaves the factory, it is equipped only with straight thread o-ring fittings. Customer-added accessories may differ; therefore, consult the manufacturer's product literature for information.

1. Verify that both mating parts are free of burrs, nicks, scratches, and any foreign material.
2. Lubricate the new o-ring with a light coat of hydraulic oil.
3. Back off the locknut as far as possible.
4. Screw the fitting into the port by hand until the back-up washer contacts the face of the port and is pushed all the way towards the locknut.
5. To position the fitting, unscrew by the required amount, but not more than one full turn.
6. Hold the fitting in the desired position and tighten to the proper torque according to the following chart:

Adjustable Straight-Thread O-ring Fitting Torque Chart		
SAE Size	Torque	
	lb/ft	Nm
4	15-17	20-23
6	34-36	46-49
8	58-62	79-84
10	100-110	136-149
12	134-146	181-198
16	202-218	274-296
20	248-272	336-369
24	303-327	411-443

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c. Oil and Filter Change

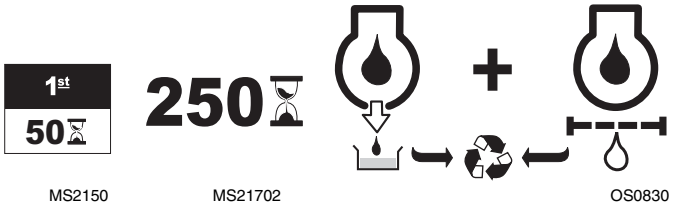


Figure 2-26 Change the engine oil and engine oil filter.

Change the oil and filter after the first 50 hours of vehicle operation, at 250-hour intervals. To change the oil and filter:

1. Operate the engine until it reaches operating temperature (approximately five minutes).
2. Level the vehicle, ground the attachment, place the travel select lever in the (N) NEUTRAL position, place the neutral lock lever in the (N) NEUTRAL LOCK position, engage the parking brake switch and shut the engine OFF.
3. Place an Accident Prevention Tag on both the ignition key switch and steering wheel, stating that the vehicle should not be operated. (Refer to *Section 1.4, Accident Prevention Tag Usage*.)
4. Unlock and open the engine cover.
5. Place an oil drain pan under the engine oil drain plug (Fig. 2-27, 1). Fabricate a V-shaped piece of cardboard to serve as a funnel trough for draining oil from the oil pan to the oil drain pan.
6. Remove the drain plug from the engine oil pan.
7. Allow the oil to drain completely into the receptacle. Transfer the oil to a container with a cover and label the container as used motor oil. Dispose of used oil at an approved recycling facility.
8. Remove the oil filter (Fig. 2-27, 2) and clean the filter-sealing surface.
9. Apply a thin coat of clean engine oil to the new filter mating surface.
10. Install the new oil filter and hand tighten. Use an oil filter wrench or strap to tighten the filter down an additional one-quarter to half turn. **DO NOT** overtighten.
11. Clean and reinstall the oil drain plug into the engine oil pan.
12. Remove the engine oil fill cap (Fig. 2-27, 3) and add oil (refer to the engine manufacturer's manual for recommended oil types for various operating conditions). Engine oil capacity with filter change is 11.0 quarts (10,4 liters).
13. Reinstall the oil fill cap. Start the engine and allow it to run for several minutes.
14. Shut off the engine. Wait several minutes, and then check the oil level again on the dipstick (Fig. 2-27, 4). Add oil as required. **DO NOT** overfill.
15. Look for oil leaks at the filter and drain plug. Tighten as required.

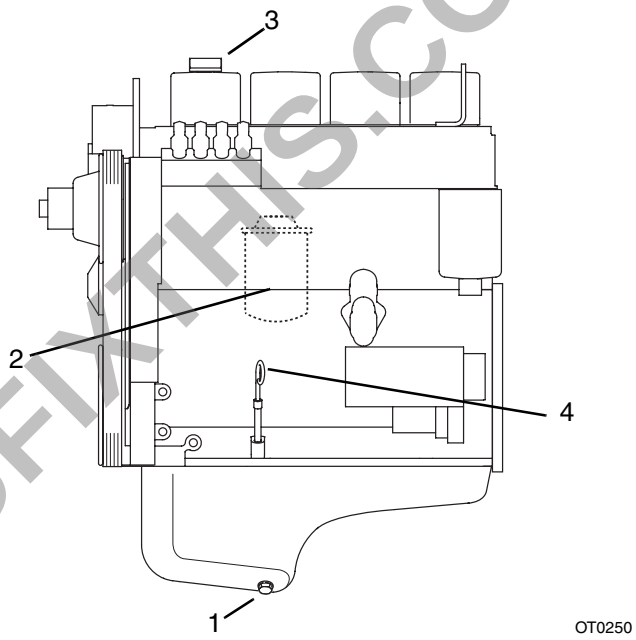


Figure 2-27 Location of items relevant to checking the engine oil level and changing the oil and filter.

2.13.6 Engine Fuel System

a. Drain Water from Fuel-Water Separator/Filter

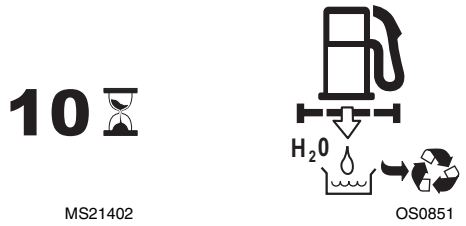


Figure 2-28 Drain water from the fuel-water separator/filter every 10 hours of engine operation.

1. Level the vehicle, ground the attachment, place the travel select lever in the (N) NEUTRAL position, place the neutral lock lever in the (N) NEUTRAL LOCK position, engage the parking brake switch and shut the engine OFF. Allow the engine to cool.

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3.5 TROUBLESHOOTING

This section provides an easy reference guide covering the most common problems that occur during operation of the boom.

Boom Troubleshooting

Problem	Cause	Remedy
1. Boom will not extend or retract.	1. Broken hydraulic hose(s) or tube(s) and/or connections leaking.	1. Locate break, replace hose(s) or tube(s), tighten connections.
	2. Extend/retract hydraulic and/or electrical system(s) not operating properly.	2. Refer to *Section 9.9, Hydraulic Circuits and Troubleshooting* and/or *Section 10.7.19, Boom Extend/Retract Circuit and Troubleshooting*.
	3. Faulty extend/retract cylinder.	3. Repair cylinder. (Refer to *Section 9.14.6, Extend/Retract Cylinder (Double Trunnion Pin)* or *Section 9.14.7, Extend/Retract Cylinder (Single Trunnion Pin)*
	4. Broken chains or anchors.	4. Replace chains or anchors as needed. (Refer to *Section 3.3.5, c. Chain Replacement*.)
2. Dropping chain, or jerky boom extend or retract functions.	1. Chain(s) tension not properly adjusted.	1. Adjust chain(s). (Refer to *Section 3.3.5, b. Extend Chain Adjustment*.)
	2. Chain(s) stretched or binding.	2. Replace chain(s) as needed. (Refer to *Section 3.3.5, c. Chain Replacement*.)
	3. Wear pads loose, contaminated, excessively worn or damaged.	3. Replace wear pads. (Refer to *Section 3.3.6, b. Boom Wear Pad Replacement*.)
	4. Contaminated, corroded or rusted wear pad sliding surfaces.	4. Remove contamination and/or corrosion from wear pad sliding surfaces and lubricate. (Refer to *Section 3.3.6, c. Boom Wear Pad Lubrication*.) If the surfaces cannot be reconditioned, replace the boom section(s).
	5. Extend/retract hydraulic and/or electrical system(s) not operating properly.	5. Refer to *Section 9.9, Hydraulic Circuits and Troubleshooting* and/or *Section 10.7.19, Boom Extend/Retract Circuit and Troubleshooting*.
	6. Damaged boom section.	6. Replace the damaged boom section. (Refer to *Section 3.3, Boom Assembly Maintenance*.)

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2.5 SPECIFICATIONS

2.5.1 Vehicle Dimensions - 4266, 4270L and 4290L

With Standard 16-ply 13.00-24 (4266/4270L) or 12-ply 15.50-25 (4290L) Tires

Description (Fig. 2-2)	4266	4270L	4290L
(A) Length (without Attachment)	239.8" (6090 mm)	239.8" (6090 mm)	239.8" (6090 mm)
(B) Width	98" (2489 mm)	98" (2489 mm)	101" (2565 mm)
(C) Height (Boom Lowered)	93" (2362 mm)	93" (2362 mm)	93" (2362 mm)
(D) Wheelbase	131" (3327 mm)	131" (3327 mm)	131" (3327 mm)
(E) Tread	84" (2134 mm)	84" (2134 mm)	84" (2134 mm)
(F) Ground Clearance (at the bottom of the hydraulic reservoir drain plug)	15.3" (389 mm)	15.3" (389 mm)	15.3" (389 mm)
(G) Turning Radius, Curb to Curb	147" (3734 mm)	147" (3734 mm)	156" (3962 mm)
(H) Turning Radius, Clearance	147" (3734 mm)	147" (3734 mm)	150" (3810 mm)
(I) Maximum Lift Height, Boom Extended	42' 4" (12903 mm)	42' 4" (12903 mm)	42' 4" (12903 mm)
(J) Maximum Lift Height, Boom Retracted	20' 3" (6173 mm)	20' 3" (6173 mm)	20' 3" (6173 mm)
(K) Maximum Below Grade Depth, Boom Extended	1' 8" (508 mm)	1' 8" (508 mm)	1' 8" (508 mm)
(L) Maximum Reach, from Front of Front Tires	29' 3" (8915 mm)	29' 3" (8915 mm)	29' 3" (8915 mm)
(M) Maximum Reach at Maximum Lift Angle, Boom Extended	5' 6" (1676 mm)	5' 6" (1676 mm)	5' 6" (1676 mm)
(N) Maximum Reach at Maximum Lift Angle, Boom Retracted	-3' (-914 mm)	-3' (-914 mm)	-3' (-914 mm)
(O) Maximum Reach at Minimum Lift Angle, Boom Extended	29' (8839 mm)	29' (8839 mm)	29' (8839 mm)
(P) Maximum Boom Lift Angle	69°	69°	69°
(Q) Minimum Boom Lift Angle	-2.9°	-2.9°	-2.9°
(R) Angle of Approach	N/A	N/A	N/A
(S) Angle of Departure	34.2°	34.2°	34.2°
Fork Tilt Angle:			
(T) At Maximum Boom Angle - UP	83°	83°	83°
(U) At Maximum Boom Angle - DOWN	-40°	-40°	-40°
(V) At Minimum Boom Angle - UP	10°	10°	10°
(W) At Minimum Boom Angle - DOWN	-113°	-113°	-113°
Frame Tilt Angle (Not Shown):			
Right	10.0°	10.0°	10.0°
Left	10.0°	10.0°	10.0°

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2.13 MAINTENANCE INSTRUCTIONS

WARNING: **DO NOT** service the vehicle without following all safety precautions as outlined in the “Safety Practices” section of this manual. Failure to follow the safety practices may result in death or serious injury.

WARNING: **DO NOT** perform service or maintenance on the vehicle with the engine running. Contact with moving parts can cause death or serious injury.

IMPORTANT: ***SKY TRAK*** *International recommends the use of environmentally sound waste storage and disposal practices.* ***NEVER*** *drain fluids on the ground or into a sewer or catch basin. Use suitable collection containers, then store and/or dispose of waste products in an approved and safe manner. Check and obey all Federal, State and/or Local regulations regarding waste storage, disposal and recycling.*

This section contains a routine equipment checklist and a maintenance schedule and checklist with references to pertinent procedures and instructions. To help prevent problems before they occur, follow the maintenance schedule.

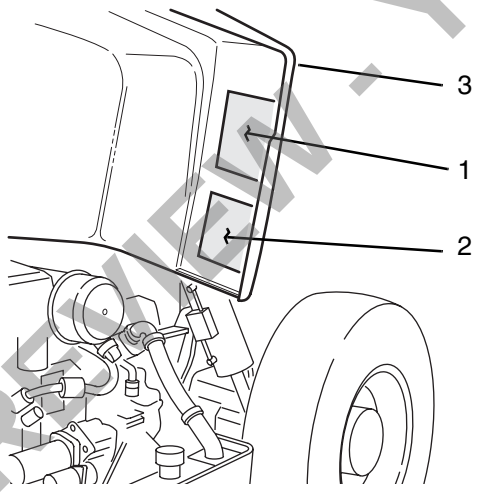


Figure 2-5 Lubrication and maintenance chart decals are located inside the engine cover.

Note: *Lubrication (Fig. 2-5, 1) and maintenance (2) chart decals are located inside the engine compartment cover (3). These decals contain a general maintenance schedule that should be followed to maintain the vehicle in good operating condition. The same schedule information is presented in this manual, except that it contains a more detailed account of how to perform these specific maintenance operations.*

2.13.1 Maintenance Schedule and Checklist

a. 10 Hour Intervals

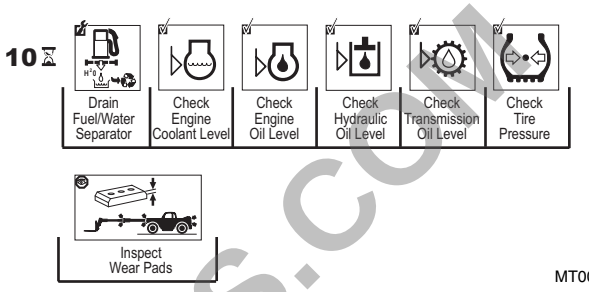


Figure 2-6 10 hour interval maintenance schedule and checklist.

At ten-hour intervals, perform the following:

- Drain the fuel/water separator (refer to *Section 2.13.6, Engine Fuel System*).
- Check the engine coolant level (refer to *Section 2.13.4, Engine Cooling System*).
- Check the engine oil level (refer to *Section 2.13.5, Engine Oil and Filter*).
- Check the hydraulic reservoir oil level (refer to *Section 2.13.8, Hydraulic System Oil and Filter*).
- Check the transmission oil level (refer to *Section 2.13.9, Transmission Oil and Filter*).
- Check the air pressure in the tires (refer to *Section 2.13.14, Wheels and Tires*).
- Check boom wear pad thickness (refer to *Section 2.13.17, Boom Wear Pad Maintenance*).

b. At First 50 Hours of Use

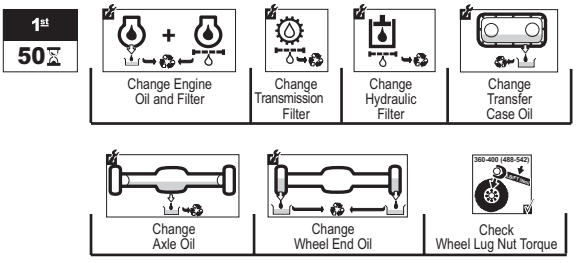
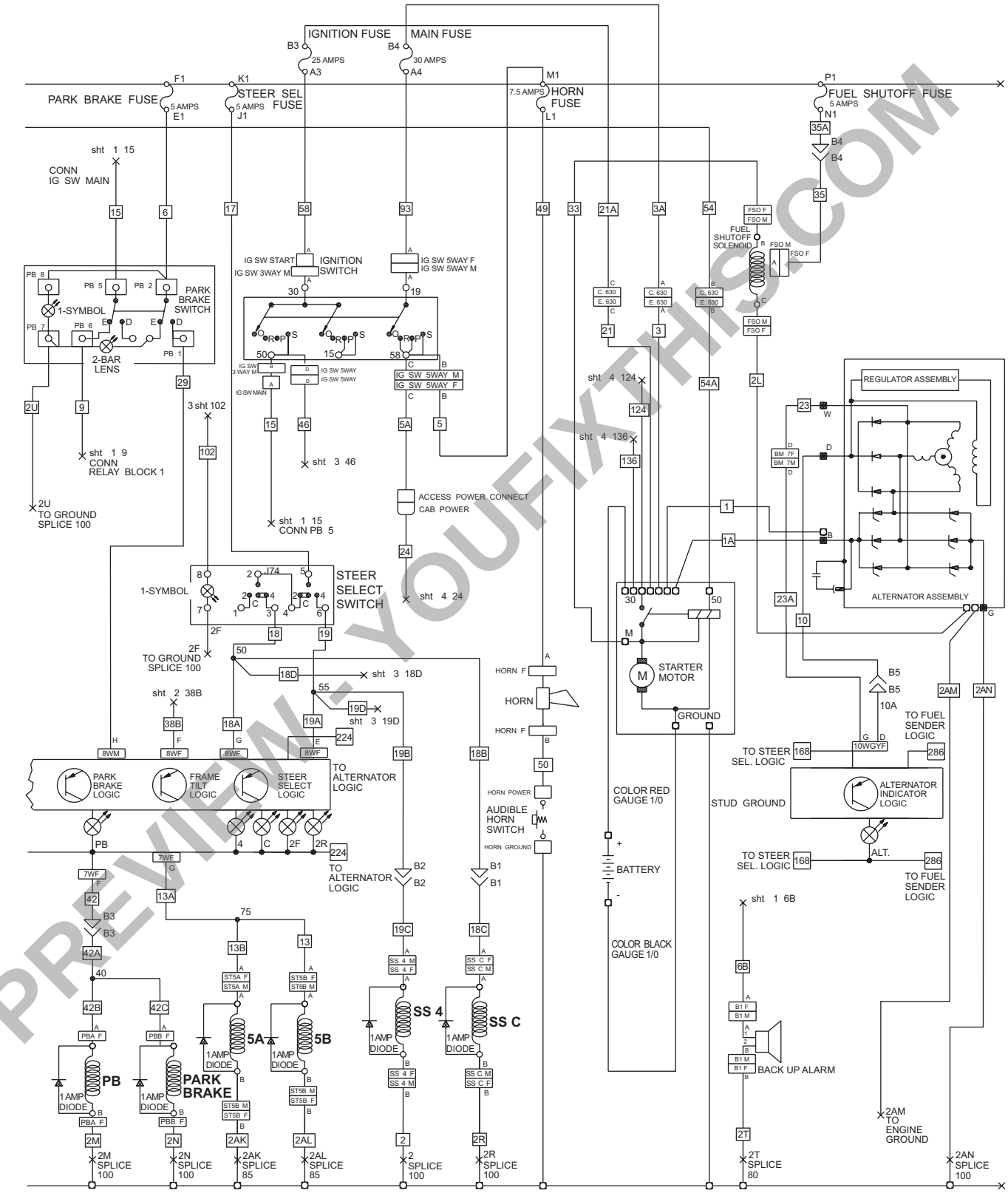


Figure 2-7 First 50 hour interval maintenance schedule and checklist.

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9.8 HYDRAULIC OPTIONS TESTING

9.8.1 4266/4270/4290 Hydraulic Options Testing

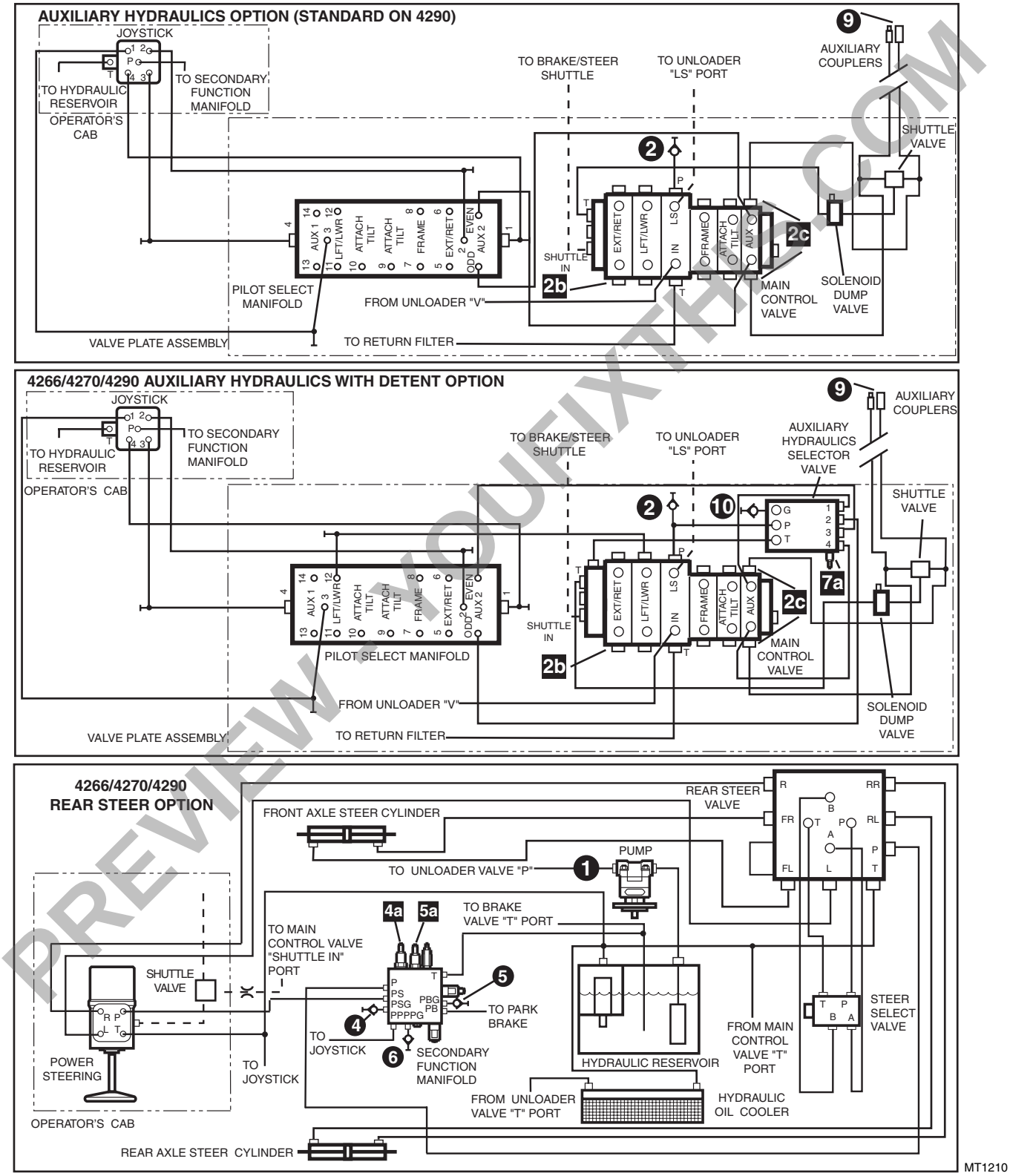


Figure 9-6 4266/4270/4290 hydraulic options diagram.

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2.3.5 Flat-Face O-ring Fittings

When the vehicle leaves the factory, it is equipped only with straight thread o-ring fittings. Customer-added accessories may differ; therefore, consult the manufacturer's product literature for information.

Improper assembly of this type of joint will result in a leaking joint. Under tightening will result in the joint loosening during normal use. Foreign material on either sealing surfaces will cause damage to one or both mating parts when the joint is tightened, resulting in a leaking joint. The absence of the fitting o-ring will cause the joint to leak.

1. Verify that both threads and sealing surfaces are free of burrs, nicks, scratches, and any foreign material.
2. Inspect the male fitting for the presence of the o-ring seal. Replace the o-ring if missing or damaged.
3. Place the flat surface of the female connector in full contact with the o-ring in the male connector.
4. Finger tighten the nut onto the fitting.
5. Hold the fitting in the desired position, for hoses and swivel fittings, use a second wrench to keep the female connector from moving during tightening. Tighten to the proper torque according to the following chart:

SAE Size	Torque	
	lb/ft	Nm
4	19-36	26-49
6	28-54	38-73
8	42-80	57-108
10	65-126	88-171
12	100-180	136-244
16	130-240	176-325
20	150-280	203-380
24	175-330	237-447

2.4 METRIC CONVERSION FACTORS

2.4.1 Approximate American to Metric Conversions

When this is known	*Multiply by*	*To Find*
TORQUE (moment of force)		
Pound/feet (lb/ft)	1.356	Newton meters (Nm)
Pound/inches (lb/in)	0.113	Newton meters (Nm)
POWER		
Horsepower (hp)	745.7	Watts
SPEED (velocity)		
Miles per hour (mph)	1.609	Kilometers per hour (km/hr; kph)
LENGTH (distance)		
Inches (in)	25.4	Millimeters (mm)
Inches (in)	2.5	Centimeters (cm)
Feet (ft)	30.5	Centimeters (cm)
Feet (ft)	0.305	Meters (m)
Yards (yd)	0.9	Meters (m)
Miles (mi)	1.6	Kilometers (km)
AREA		
Square inches (in^2)	6.5	Square centimeters (cm^2)
Square feet (ft^2)	0.09	Square meters (m^2)
Square yards (yd^2)	0.8	Square meters (m^2)
Square miles (mi^2)	2.6	Square kilometers (km^2)
Acres	0.4	Hectares (ha)
MASS (weight)		
Ounces (oz)	28.3	Grams (g)
Pounds (lb)	0.4536	Kilograms (kg)
Short tons (2000 lb)	0.9	Metric ton (t)

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a. Inner Boom Removal (All Models)

Note: *The following procedure describes the removal of the inner boom for the low-mounted boom models (4266, 4270L and 4290L), but will also apply to high-mount boom models (4270H and 4290H). Steps unique to the high-mount boom models are specified.*

1. Remove any attachment from the quick attach assembly. (Refer to *Section 3.4.1, Disconnecting from an Attachment*.)

Note: *This procedure will require a clear space of approximately 16 feet at the front and rear of the vehicle.*

2. Park the vehicle on a hard, level surface. Move the boom to a horizontal (level) position. Extend (or retract) the boom until the boom is extended approximately two feet (610 mm). Move the quick attach to the horizontal position. Place the travel select lever in the (N) NEUTRAL position, place the neutral lock lever in the (N) NEUTRAL LOCK position, engage the parking brake and shut the engine OFF.
3. Open the rear cover.
4. **Models 4270H and 4290H only**: Remove four 1/4-20 NC x .875", Grade 5 socket-head cap screws (Fig. 3-1, 1), four 1/4" lockwashers (2) and four 1/4" plain washers (3). Remove the boom rear cover (4).

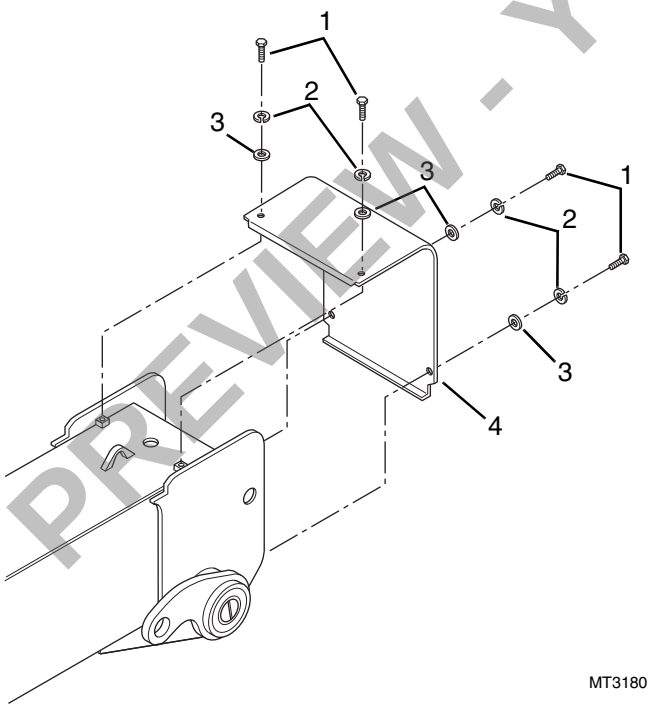


Figure 3-1 Remove the boom rear cover (Models 4270H and 4290H).

5. Loosen the extend chains, by loosening the two locknuts (Fig. 3-2, 1), located at the rear of the outer boom (2). The locknuts must remain fully engaged with the threads of the extend chain clevis'.

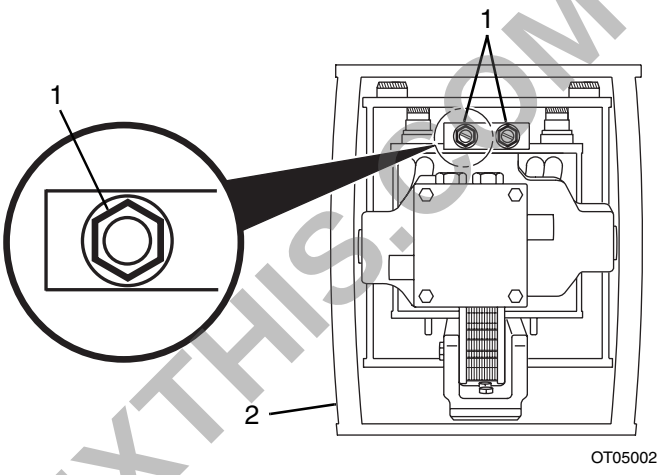


Figure 3-2 Loosen the extend chain.

6. Remove the top and side wear pads and spacers attached to the front of the intermediate boom. Tape and mark each pad, spacer and fasteners for return to its original position upon reinstallation.
7. Return to the cab, fasten your seat belt and start the engine. Retract the boom slightly until slack is noticed in the extend chain. Shut the engine OFF.
8. Place an Accident Prevention Tag on both the ignition key switch and steering wheel, stating that the vehicle should not be operated. (Refer to *Section 1.4, Accident Prevention Tag Usage*.)
9. Unlock and open the engine compartment cover. Allow the engine, transmission and hydraulic fluid to cool before proceeding.

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Boom Troubleshooting (Continued)

Problem	Cause	Remedy
3. Boom will not raise or lower.	1. Broken hydraulic hoses or tubes and/or connection leaks.	1. Locate break, replace hose(s) or tube(s), tighten connections.
	2. Hoist/lower hydraulic and/or electrical system(s) not operating properly.	2. Refer to *Section 9.9, Hydraulic Circuits and Troubleshooting* and/or *Section 10.7.20, Boom Lift/Lower Circuit and Troubleshooting*.
	3. Faulty hoist/lower cylinder.	3. Repair cylinder. Refer to *Section 9.14.8, 4266/4270 Lift/Lower Cylinder (4" Dia. Rod)* or *Section 9.14.9, 4290 Lift/Lower Cylinder (5" Dia. Rod)*.
	4. Seized boom pivot pin bearing.	4. Replace bearing.
4. Boom shifts to right or left when extending.	1. Boom pivot pin improperly shimmed.	1. Re-shim the boom to a maximum total gap of .10" (2.5 mm) with shims distributed evenly on both sides of the boom pivot pin.
	2. Incorrect wear pad gap or shimming, or wear pads excessively worn.	2. Shim wear pads to correct gap. (Refer to *Section 3.3.6, a. Boom Wear Pad Check*.) Replace wear pads as needed. (Refer to *Section 3.3.6, b. Boom Wear Pad Replacement*.)
5. Excessive boom pivot pin noise and/or wear.	1. Insufficient lubrication.	1. Lubricate at regular intervals. (Refer to *Section 3.3.7, Boom Lubrication Points*.) Replace worn pins as needed.
	2. Worn bearing(s).	2. Replace bearing(s) and lubricate at regular intervals. (Refer to *Section 3.3.7, Boom Lubrication Points*.)
6. Excessive slave cylinder pivot pin noise and/or wear.	1. Insufficient lubrication.	1. Lubricate at regular intervals. (Refer to *Section 3.3.7, Boom Lubrication Points*.) Replace worn pins as needed.
	2. Worn bearing(s).	2. Replace bearing(s) and lubricate at regular intervals. (Refer to *Section 3.3.7, Boom Lubrication Points*.)

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2.5.2 Vehicle Dimensions - 4270H and 4290H

With Standard 16-ply 13.00-24 (4270H) or 12-ply 15.5-25 (4290H) Tires

Description (Fig. 2-3)	4270H	4290H
(A) Length (without Attachment)	245" (6223 mm)	245" (6223 mm)
(B) Width	98" (2489 mm)	101" (2565 mm)
(C) Height (Boom Lowered)	93" (2362 mm)	93" (2362 mm)
(D) Wheelbase	131" (3327 mm)	131" (3327 mm)
(E) Tread	84" (2134 mm)	84" (2134 mm)
(F) Ground Clearance (at the bottom of the hydraulic reservoir drain plug)	15.3" (389 mm)	15.3" (389 mm)
(G) Turning Radius, Curb to Curb	147" (3734 mm)	156" (3962 mm)
(H) Turning Radius, Clearance	147" (3734 mm)	150" (3810 mm)
(I) Maximum Lift Height, Boom Extended	42' (12802 mm)	42' (12802 mm)
(J) Maximum Lift Height, Boom Retracted	20' 6" (6249 mm)	20' 6" (6249 mm)
(K) Maximum Below Grade Depth, Boom Extended	2' 5" (635 mm)	2' 5" (635 mm)
(L) Maximum Reach, from Front of Front Tires	29' 8" (9052 mm)	29' 8" (9052 mm)
(M) Maximum Reach at Maximum Lift Angle, Boom Extended	7' 2" (2184 mm)	7' 2" (2184 mm)
(N) Maximum Reach at Maximum Lift Angle, Boom Retracted	-2' 8" (-813 mm)	-2' 8" (-813 mm)
(O) Maximum Reach at Minimum Lift Angle, Boom Extended	29' 2" (8890 mm)	29' 2" (8890 mm)
(P) Maximum Boom Lift Angle	65.5°	65.5°
(Q) Minimum Boom Lift Angle	-5.1°	-5.1°
(R) Angle of Approach	N/A	N/A
(S) Angle of Departure	34.2°	34.2°
Fork Tilt Angle:		
(T) At Maximum Boom Angle - UP	80°	80°
(U) At Maximum Boom Angle - DOWN	-45°	-45°
(V) At Minimum Boom Angle - UP	9.4°	9.4°
(W) At Minimum Boom Angle - DOWN	-113.5°	-113.5°
Frame Tilt Angle (Not Shown):		
Right	10.0°	10.0°
Left	10.0°	10.0°

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When the vehicle completes its first 50 hours of use, perform the following:

- Change the engine oil and filter (refer to *Section 2.13.5, Engine Oil and Filter*).
- Change the transmission filter (refer to *Section 2.13.9, Transmission Oil and Filter*).
- Change the hydraulic filter (refer to *Section 2.13.8, Hydraulic System Oil and Filter*).
- Change the transfer case oil (refer to *Section 2.13.13, Transfer Case Oil*).
- Change the axle oil (refer to *Section 2.13.10, Axle Oil*).
- Change the wheel end oil (refer to *Section 2.13.12, Wheel End Oil*).
- Check the wheel lug nut torque (refer to *Section 2.13.14, Wheels and Tires*).

c. 250 Hour Intervals

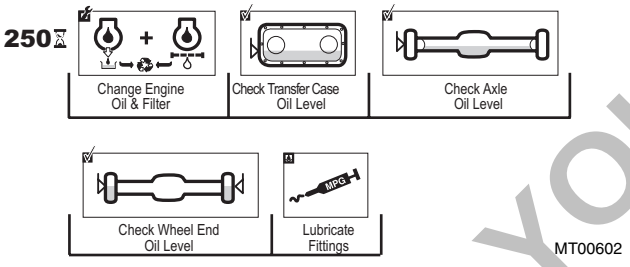


Figure 2-8 250 hour interval maintenance schedule and checklist.

At 250 hour intervals, perform the following:

- Change the engine oil and filter (refer to *Section 2.13.5, Engine Oil and Filter*).
- Check the transfer case oil level (refer to *Section 2.13.13, Transfer Case Oil*).
- Check the axle oil level (refer to *Section 2.13.10, Axle Oil*).
- Check the wheel end oil level (refer to *Section 2.13.12, Wheel End Oil*).
- Apply multi-purpose grease at all lubrication points (Fig. 2-9). Lubricate the following components via the grease fittings with good grade of a multi-purpose, lithium-based grease every 250 hours (remove all excess grease):

A. Hydraulic cylinder pins ..... 14 points
B. Powertrain slip joints & axle U-joints ..... 11 points
C. Boom pivot pin ..... 4 points
D. Quick attach pivot pin ..... 2 points
E. Axle pivot pins ..... 4 points
F. Boom attachments ..... all points
G. Chain sheave ..... 2 points

Note: *Shorten the lubrication interval on all lubrication points when operating under severe conditions.*

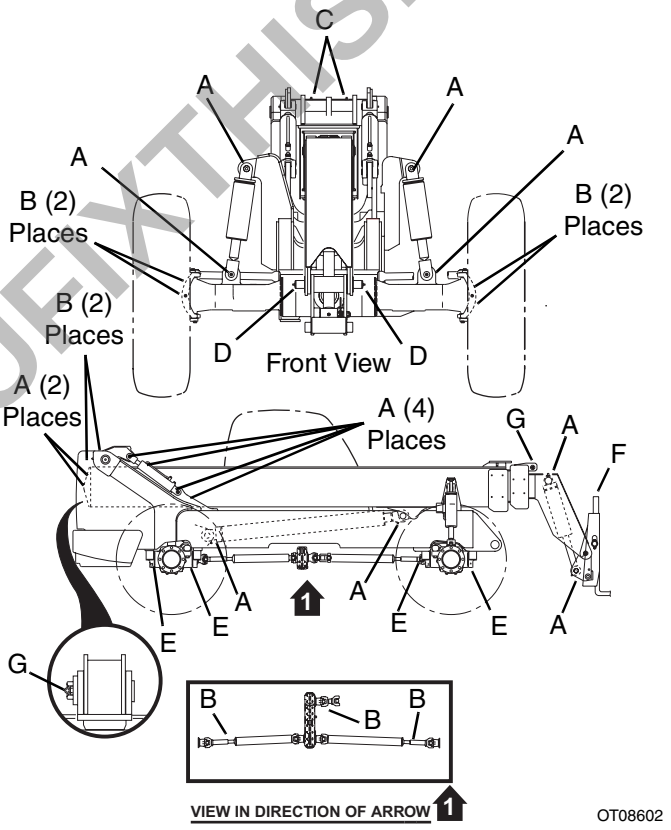
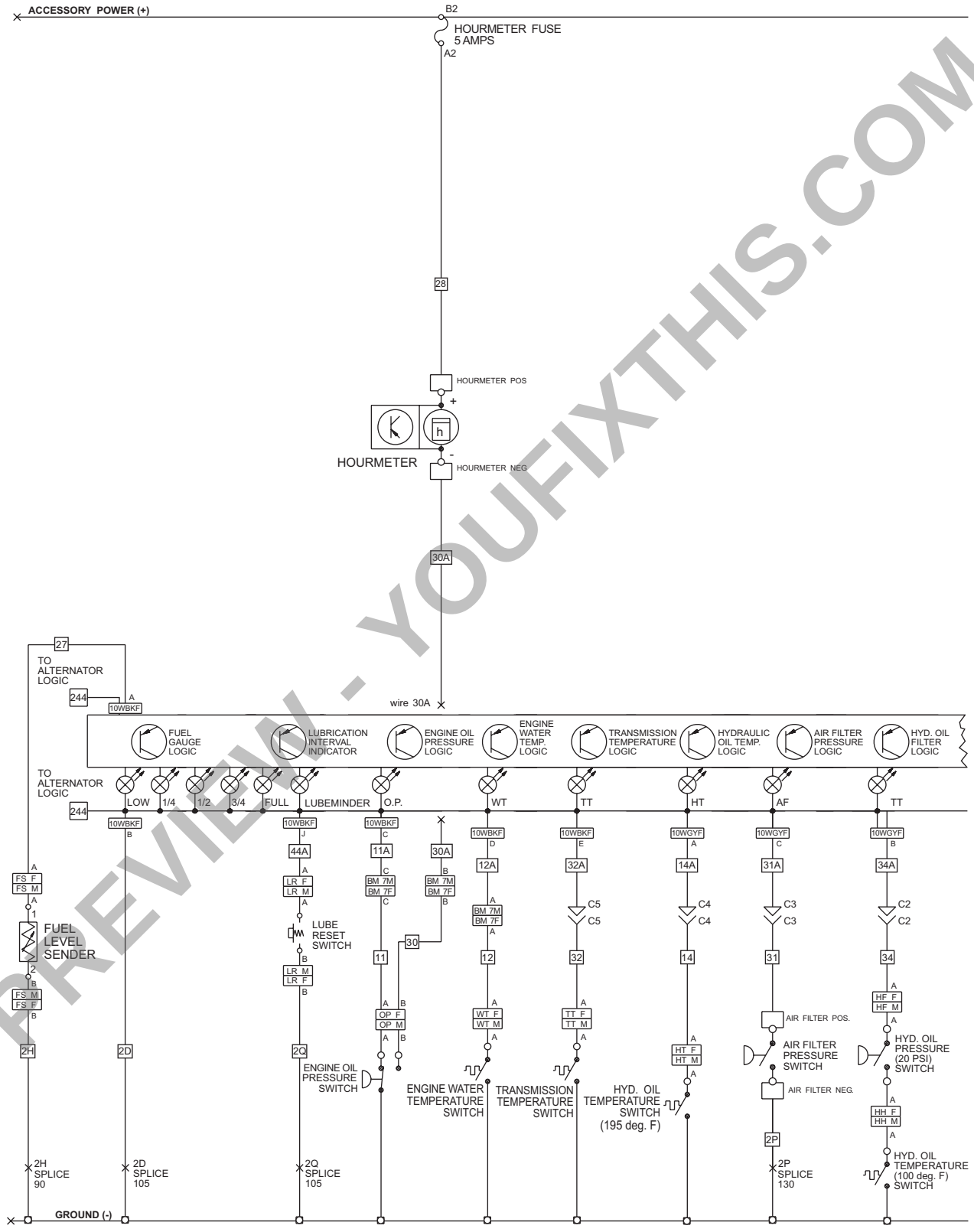


Figure 2-9 Sky Trak Models 4266/4270L/4270H/4290L/4290H lubrication points.

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10.7.7 Main Electrical Schematic (Sheet 2 of 4)



MT16001

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9.9.1 Brake Circuit and Troubleshooting

(Refer to *Section 9.9.26, Brake Circuit Description* for a more detailed explanation of this circuit.)

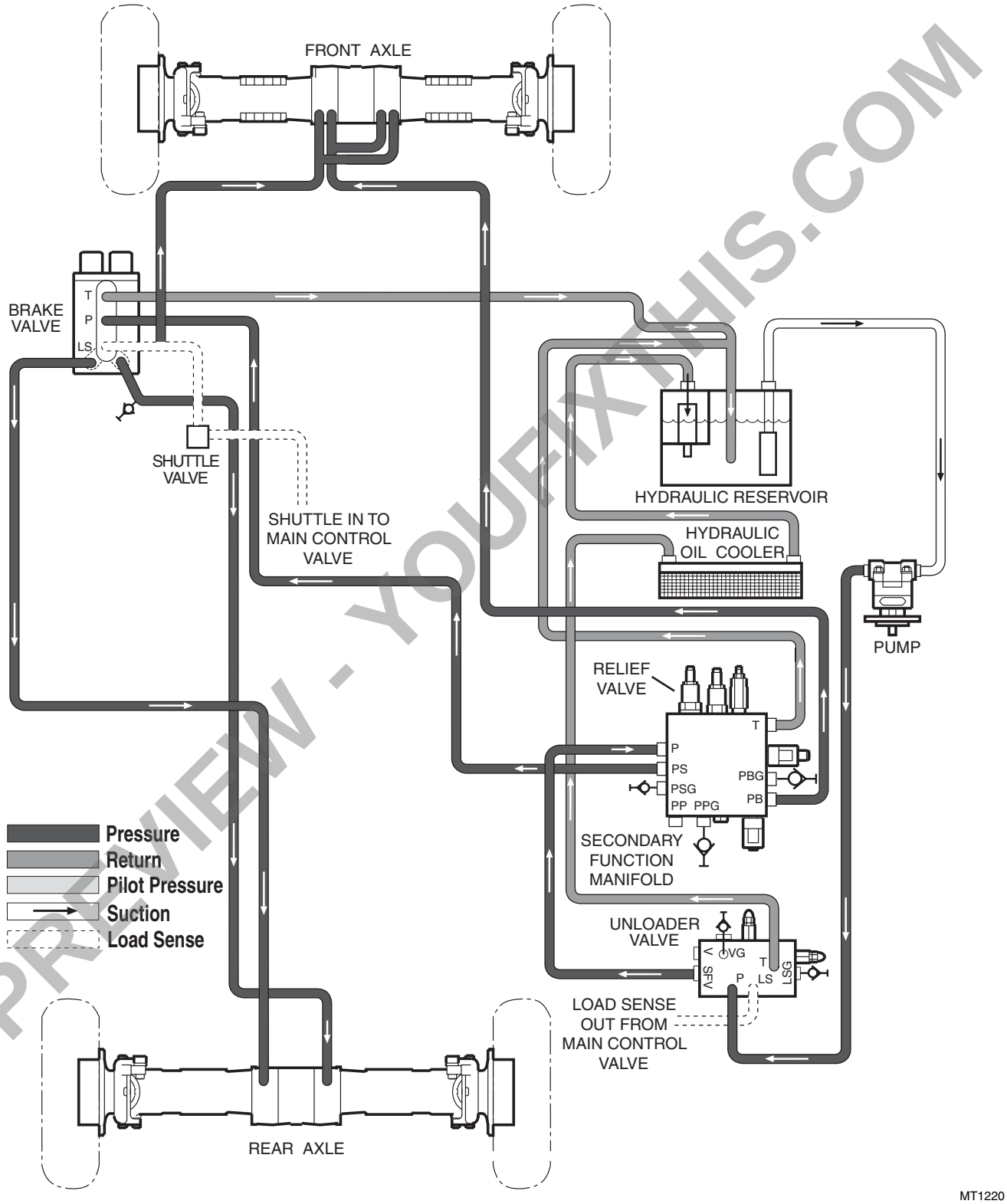
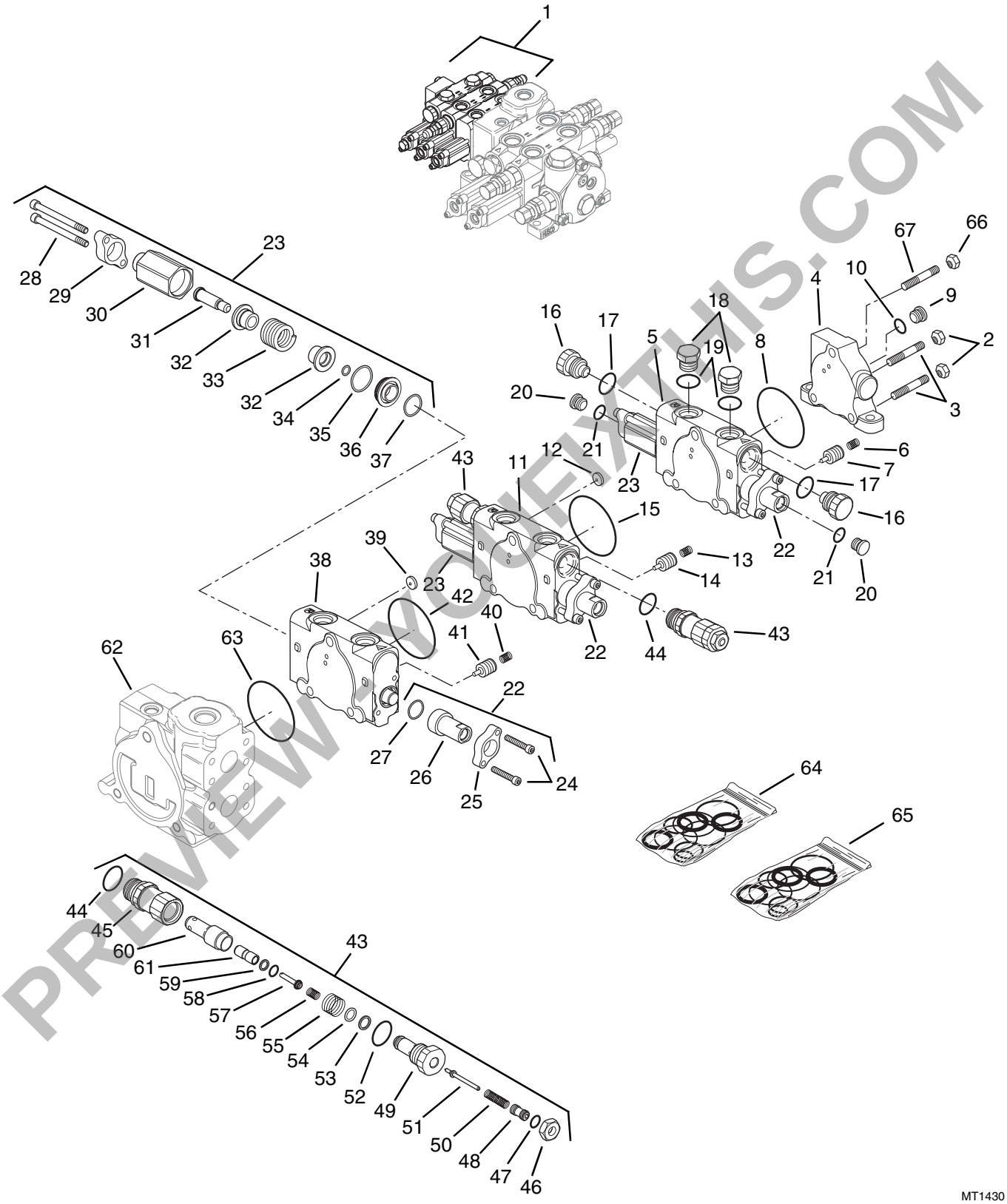


Figure 9-7 Brake system circuit.

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Figure 9-58 Main control valve - frame sway/attachment tilt/auxiliary/outlet sections.

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4.4.2 Joystick Replacement

a. Joystick Handle Replacement

Joystick Handle Removal

1. Park the vehicle on a firm, level surface. Set the park brake, ground the carriage, place the travel select lever in the (N) NEUTRAL position, place the neutral lock lever in the (N) NEUTRAL LOCK position, engage the parking brake and turn the ignition OFF.
2. Disconnect the battery negative (-) ground cable (Fig. 4-53, 1) at the battery negative (-) terminal.

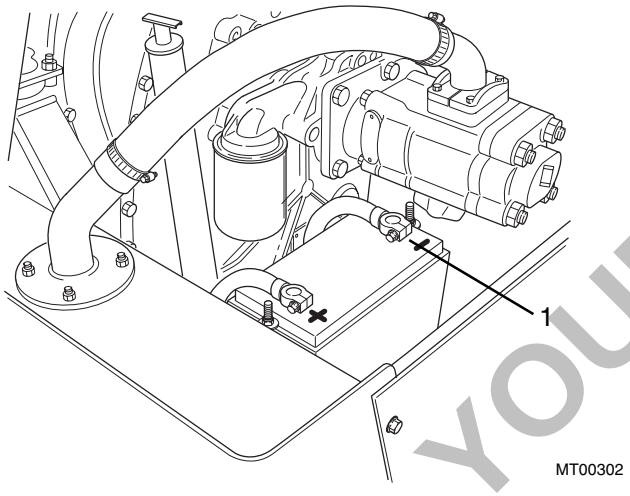


Figure 4-53 Disconnect the battery negative (-) cable.

3. Remove the rubber boot (Fig. 4-54, 1) from the joystick (2). Pull the boot off the base (3) and remove the boot from the handle.

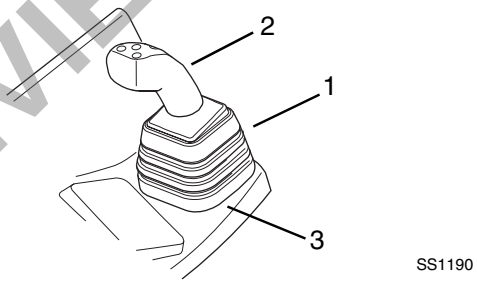


Figure 4-54 Remove the boot from the joystick.

4. Remove the four #10-32 x 3/4" button-head capscrews (Fig. 4-55, 1) securing the logic panel (2) to the side console. Carefully pry the logic console upward. Label, then disconnect the wiring harness leads at the logic panel. Remove the logic panel from the vehicle.
5. Loosen the upper hex nut (Fig. 4-55, 3).

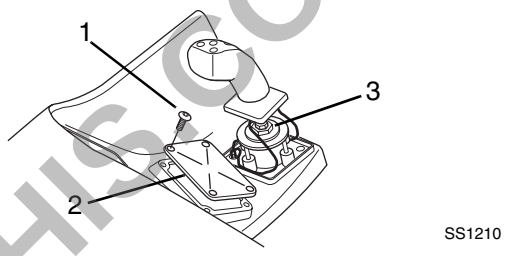


Figure 4-55 Remove the four button-head capscrews securing the logic panel to the side console.

6. Reach through the logic panel opening in the console and pull the joystick connector through the opening.
7. Remove the gray secondary lock (Fig. 4-56, 1) from the joystick wiring connector, by gently prying up on each side of the lock with a small screwdriver. Remove the lock from the wires and save the lock for reassembly.
8. Note the position of the wires (Fig. 4-56, 4) for reassembly, and remove the wires from the joystick connector (3). Use a small paper clip (2) or a small pick to release the locking tabs on each wire. Pull the wires (4) all the way out of the connector, the weather-tight seals can remain on the wires. Save the connector for reassembly.

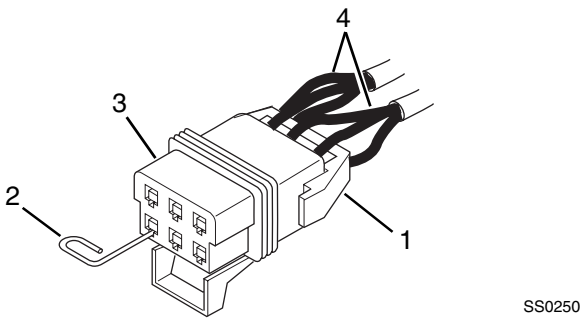


Figure 4-56 Remove the wires from the joystick connector.

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Boom Troubleshooting (Continued)

Problem	Cause	Remedy
7. Excessive hoist/lower cylinder pivot pin noise and/or wear.	1. Insufficient lubrication.	1. Lubricate at regular intervals. (Refer to *Section 3.3.7, Boom Lubrication Points*.) Replace worn pins as needed.
	2. Worn self-aligning bearing(s).	2. Replace bearing(s) and lubricate at regular intervals. (Refer to *Section 3.3.7, Boom Lubrication Points*.)
8. Rapid boom pad wear.	1. Incorrect wear pad gap.	1. Check wear pad gaps and correct as needed. (Refer to *Section 3.3.6, a. Boom Wear Pad Check*.)
	2. Rapid cycle times with heavy loads.	2. Reduce cycle times.
	3. Contaminated, corroded or rusted wear pad sliding surfaces.	3. Remove contamination and/or corrosion from wear pad sliding surfaces and lubricate. (Refer to *Section 3.3.6, c. Boom Wear Pad Lubrication*.) If the surfaces cannot be reconditioned, replace the boom section(s).
	4. Operating in extremely dusty/ abrasive conditions.	4. Clean equipment frequently.
12. Auxiliary hydraulics will not operate.	1. Auxiliary hydraulic or electrical system(s) not operating properly.	1. Refer to *Section 9.9, Hydraulic Circuits and Troubleshooting* and/or *Section 10.7.18, Auxiliary Detent Circuit and Troubleshooting*.

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2.5.7 Electrical System

Description	All Models
Battery:	
Type, Rating	12 VDC, Negative (-) Ground, Maintenance Free
Quantity	1
Reserve Capacity	1,000 Cold Cranking Amps @ 0° F (-18° C)
Group/Series	C31XH
Alternator	12V, 65 Amps
Fuses - Standard Blade Style:	
1 Amps	Service Brake, Parking Brake, Hourmeter, Switch Lamps (Optional)
5 Amps	Fuel Shut-off Solenoid (FSOS), Transmission Range, Transmission Select, Steer Select, Auxiliary Detent (Optional), Auxiliary Hydraulic Circuit (Optional), Rear Steer Mode (Optional)
7.5 Amps	Logic Panel, Horn, Rotating Beacon (Optional)
15 Amps	Display Panel
25 Amps	Ignition
30 Amps	Main
Relay:	
Neutral Engage Relay	40 Amps

2.5.8 Engine Performance Specifications

Note: *Engine manufacturer's maximum "high idle" setting is lockwired and sealed.* ***DO NOT*** *disturb this setting.*

Description	All Models
Engine Make/Model	Cummins Turbo/4BT3.9
Displacement	239 in^3 (3,9 liters)
Horsepower	110 HP @ 2500 rpm
Number of Cylinders	4
Engine High Idle with No Load	2750 ±100
Engine Low Idle	1050 ±50 rpm
Fuel Delivery	Fuel Injection
Air Cleaner	Dry Type, Replaceable Primary and Safety Elements
Peak Torque	293 lb/ft @ 1500 rpm
Average Fuel Consumption, Depending on Load/Duty	2 gal/hr (1,67 Imp gal/hr, or 7,57 l/hr)

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d. 500 Hour Intervals

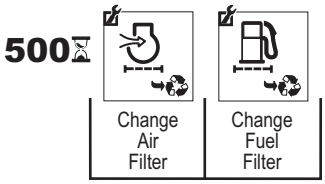


Figure 2-10 500 hour interval maintenance schedule and checklist.

At 500 hour intervals, perform the following:

- Change the air filter (refer to *Section 2.13.2, Air Cleaner*).
- Change the fuel filter (refer to *Section 2.13.6, Engine Fuel System*).

e. 1,000 Hour Intervals

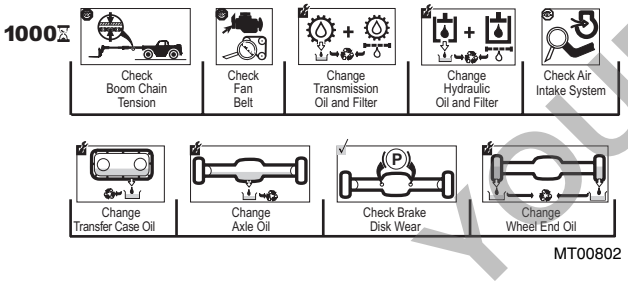


Figure 2-11 1,000 hour interval maintenance schedule and checklist.

At 1,000 hour intervals, perform the following:

- Check boom chain tension (refer to *Section 2.13.18, Boom Chains*).
- Check the fan belt (refer to *Section 2.13.7, Engine Fan Belt*).
- Change the transmission oil and filter (refer to *Section 2.13.9, Transmission Oil and Filter*).
- Change the hydraulic oil and filter (refer to *Section 2.13.8, Hydraulic System Oil and Filter*).
- Change the transfer case oil (refer to *Section 2.13.13, Transfer Case Oil*).
- Change the axle oil (refer to *Section 2.13.10, Axle Oil*).
- Check brake disc wear (refer to *Section 2.13.11, Brake Disc Wear Check*).
- Change the wheel end oil (refer to *Section 2.13.12, Wheel End Oil*).
- Check air intake system (refer to *Section 2.13.2, Air Cleaner*).

f. 2,000 Hour Intervals

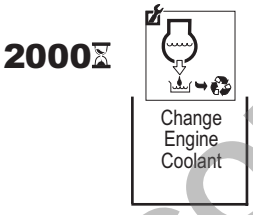


Figure 2-12 2,000 hour interval maintenance schedule and checklist.

At 2,000 hour intervals, perform the following:

- Change the engine coolant (refer to *Section 2.13.4, Engine Cooling System*).

2.13.2 Air Cleaner

a. Engine Air Restriction Warning Indicator

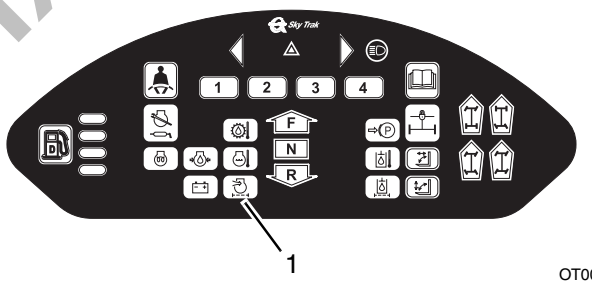


Figure 2-13 Engine air filter restriction warning indicator.

The operator's display panel includes an indicator light (Fig. 2-13, 1) that illuminates to alert the operator when restricted air flow to the engine is sensed. This indicates that the air filter needs servicing. **NEVER** operate the vehicle without the air cleaner assembly and both filters in place.

b. Air Cleaner Element: Change



Figure 2-14 Change the air filter element.

As indicated by the air cleaner restriction indicator, and/or every 500 hours, change the air filter element.

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1.1 INTRODUCTION

Sky Trak International (hereafter, **Sky Trak**) products meet all applicable industry safety standards. **Sky Trak** actively promotes safe practices in the use and maintenance of its products through training programs, instructional manuals and the pro-active efforts of all employees involved in engineering, design, manufacture, marketing and service.

This manual is designed to provide service technicians with complete information on the maintenance and repair of the Sky Trak Models 4266, 4270L, 4270H, 4290L and 4290H Telescopic Material Handlers.

Particular effort has been made to produce a manual to serve as a reference handbook for the experienced service technician, but also provide essential step-by-step procedures for the professional development of the less experienced person. Remember, even the best manual in the world is no substitute for an appropriate education, skill development that comes through experience alone, safety, wise and judicious discernment, and ultimately, proper performance of service procedures.

This service manual provides general directions for accomplishing service and repair procedures with tested, effective techniques. Following the procedures in this manual will help assure safety and equipment reliability.

Read, understand and follow the information in this manual, and obey all locally approved safety practices, procedures, rules, codes, regulations and laws. Prior to performing any maintenance on the vehicle, consider all factors, circumstances and conditions which can have an effect upon the safety of personnel and equipment, and take appropriate action to ensure the safety of all involved.

These instructions cannot cover all details or variations in the equipment, procedures or processes described, nor provide directions for meeting every possible contingency during operation, maintenance or testing.

Many factors contribute to unsafe conditions: carelessness, fatigue, overload, inattentiveness, unfamiliarity, even drugs and alcohol, among others. Although equipment damage can usually be repaired in a brief period of time, death and irreparable injury are permanent. For optimal safety, encourage everyone to think, and to act, safely.

Appropriate service methods and proper repair procedures are essential for the safety of the individual doing the work, for the safety of the operator, and for the safe, reliable operation of the vehicle.

Provisions for supplementary information are made by **Sky Trak** in the form of Service Bulletins, Service Campaigns, Service Training Schools, the OmniQuip web site, other literature, and through updates to the manual itself. Comments and suggestions for improvement are welcome and encouraged.

All information, illustrations and specifications contained in this manual are based on the latest product information available at the time of publication approval. **Sky Trak** reserves the right to make changes and improvements to its products, and to discontinue the manufacture of any product, at its discretion at any time without public notice or obligation.

1.2 OWNERS/OPERATORS MANUAL

The vehicle must be driven and operated as a consequence of, or when performing, service, maintenance and test procedures. The service technician must, therefore, thoroughly read, understand and follow the Sky Trak Model 4266 or Model 4270L/H, 4290L/H Telescopic Material Handler Owners/Operators Manual.

An owners/operators manual is supplied with each vehicle and must be kept in the holder or storage compartment located to the left and below the operator's seat (for vehicles without the closed cab option, see Fig. 1-1; for vehicles with the closed cab option, see Fig. 1-2).

In the event that the owners/operators manual is missing, consult the local **Sky Trak** distributor or the **Sky Trak** Service Department before proceeding.

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9.9.13 Auxiliary Hydraulics Circuit and Troubleshooting (Female)

(Refer to *Section 9.9.33, Auxiliary Hydraulics Circuit Description* for a more detailed explanation of this circuit.)

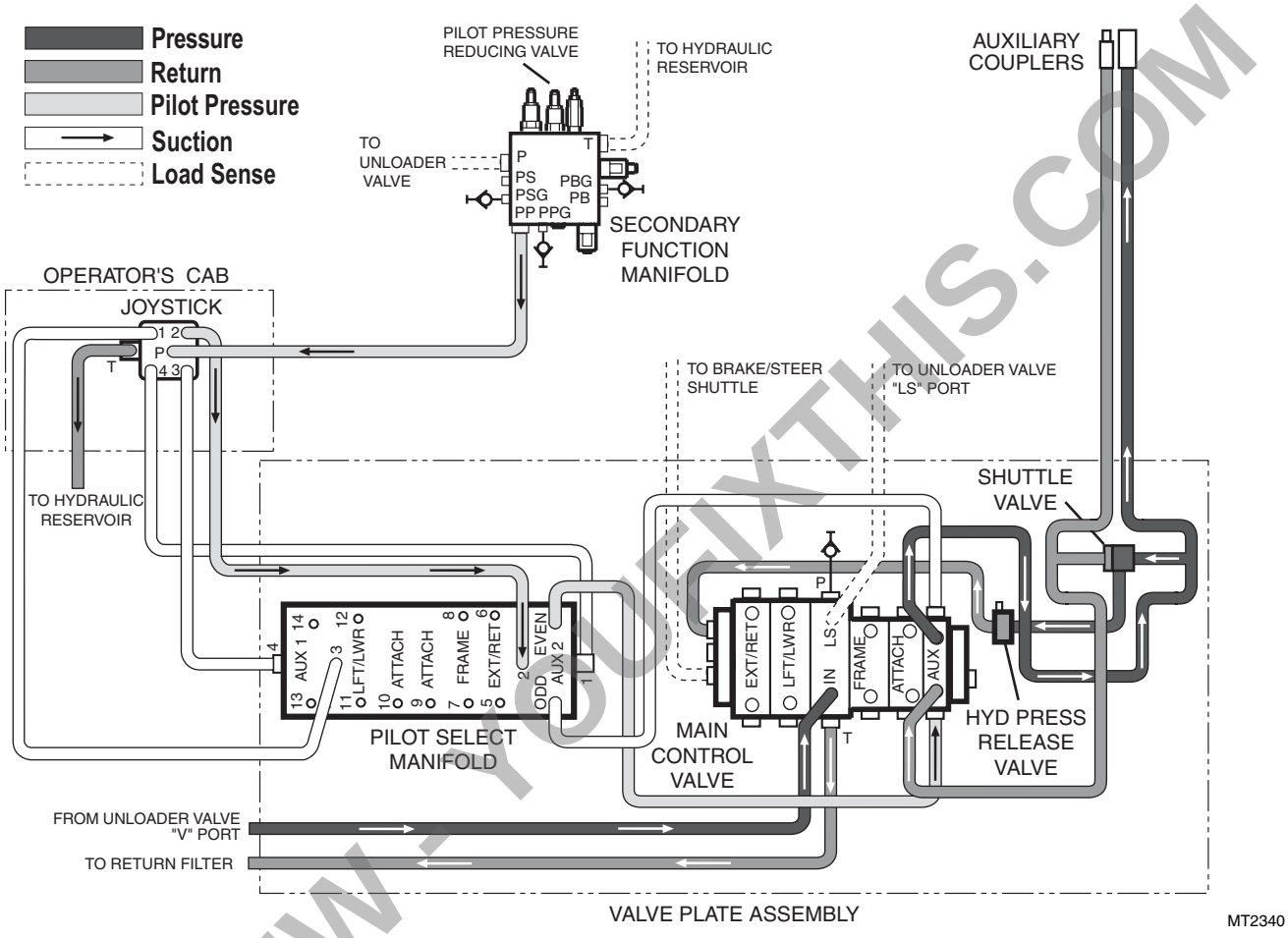


Figure 9-19 Optional auxiliary hydraulic circuit (fluid pressure to female side).

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