

621F
721F
Tier 2

Wheel Loader

from PIN NBF213588 and above

SERVICE MANUAL

Part number 47388956

1st edition English

June 2012

Replaces part number 84487573



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INTRODUCTION

Torque – 621F Torque Specifications

621F INT

Axle

Wheel mounting nuts	640 - 720 N·m (472 - 531 lb ft)
Front axle mounting bolts	651 - 678 N·m (480 - 500 lb ft)
Rear axle trunnion pin bolts	325 - 353 N·m (240 - 260 lb ft)

Chassis

Cab mounts	773 - 854 N·m (570 - 630 lb ft)
Exhaust stack to hood	36 - 44 N·m (27 - 32 lb ft)
Counterweight mounting bolts	955 - 1075 N·m (704 - 793 lb ft)
Articulation pivot pin bolts	224 - 278 N·m (165 - 205 lb ft)
Articulation mount pin retainer bolts	69 N·m (51 lb ft)
Seat mounting bolts	73 - 87 N·m (54 - 64 lb ft)
Steering wheel retaining nut	50 N·m (37 lb ft)
Hydraulic oil filter mounting bolts	23 - 27 N·m (17 - 20 lb ft)
Steering cylinder base end pin retaining bolt	290 - 375 N·m (214 - 277 lb ft)
Steering cylinder rod end pin retaining bolt	Bolts must turn freely
Horn mounting bolt	53 - 62 N·m (39 - 46 lb ft)
Hood - rear grill bolts	9 - 11 N·m (7 - 8 lb ft)
Hood hinge bolts	65 - 79 N·m (48 - 58 lb ft)
Steps - lower entry strap bolts	27 - 31 N·m (20 - 23 lb ft)

Cooling

Fan to fan hub	40 - 48 N·m (30 - 35 lb ft)
Fan hub to motor shaft (no impact tools)	67 - 74 N·m (49 - 55 lb ft)
Radiator hose clamps	10.1 - 11.3 N·m (7.4 - 8.3 lb ft)
Hydraulic tank cover nuts	14 - 18 N·m (10 - 13 lb ft)
Hydraulic tank sight gauge	2.7 - 5.5 N·m (2.0 - 4.1 lb ft)

Driveshafts

Coupling to flywheel	53 - 62 N·m (39 - 46 lb ft)
Driveshaft to coupling	53 - 62 N·m (39 - 46 lb ft)
Front driveshaft yoke nut	339 - 373 N·m (250 - 275 lb ft)
Carrier bearing mounting bolts	99 - 128 N·m (73 - 94 lb ft)
550R U-joints	75 - 81 N·m (55 - 60 lb ft)
410R U-joints	61 - 81 N·m (45 - 60 lb ft)
Dust cover mounting bolts	20 - 27 N·m (15 - 20 lb ft)

INTRODUCTION

Engine

Engine mounting brackets	118 - 133 N·m (87 - 98 lb ft)
Engine rubber isolator mounts (Qty 4)	244 - 298 N·m (180 - 220 lb ft)
Brake pump to engine mounting	57 - 65 N·m (42 - 48 lb ft)
Brake pump gear nut (no impact tools)	70 - 79 N·m (52 - 58 lb ft)
Turbo to turbo exhaust elbow clamp	5 N·m (4 lb ft)
Muffler to turbo elbow exhaust clamp	20 - 25 N·m (15 - 18 lb ft)
Front muffler bracket to engine block	118 - 133 N·m (87 - 98 lb ft)
Muffler brackets to muffler	114 - 128 N·m (84 - 94 lb ft)
Charge Air Cooler (CAC) hose clamps (Qty 8)	10.1 - 11.3 N·m (7.4 - 8.3 lb ft)
Air cleaner to turbo hose clamp	10.1 - 11.3 N·m (7.4 - 8.3 lb ft)
Alternator pulley (no impact tools)	60 - 70 N·m (44 - 52 lb ft)
Starter mounting nuts	40 - 50 N·m (30 - 37 lb ft)

Loader

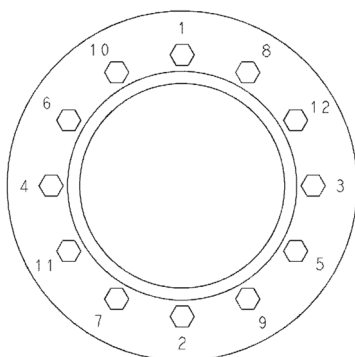
XT loader linkage bolts	650 - 732 N·m (479 - 540 lb ft)
XT guide link nuts	240 - 305 N·m (177 - 225 lb ft)
Loader link pin keeper	325 - 373 N·m (240 - 275 lb ft)

Transmission

Transmission rubber isolator mounts (Qty 3)	890 - 1000 N·m (656 - 738 lb ft)
Transmission upper mounting bracket bolts	251 - 319 N·m (185 - 235 lb ft)
Transmission lower mounting bracket bolts (Qty 2)	481 - 590 N·m (355 - 435 lb ft)
Hydraulic pump to transmission mounting	335 - 375 N·m (247 - 277 lb ft)
Cooler clamps	10.1 - 11.3 N·m (7.4 - 8.3 lb ft)
Hydraulic pump suction hose clamp flange	73 - 90 N·m (54 - 66 lb ft)
Steering priority manifold to pump	37 - 48 N·m (27 - 35 lb ft)
Transmission fill tube bolts	17 - 33 N·m (13 - 24 lb ft)
Transmission sight gauge bolts	2.7 - 5.5 N·m (2 - 4 lb ft)

Wheels

Wheel nuts	Initial torque: 298 N·m (220 lb ft) Final torque: 640 - 720 N·m (472 - 531 lb ft)
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Do the following initial and final torque procedures:

1. Tighten wheel nuts to an initial torque of **298 N·m (220 lb ft)** in sequence shown in figure
2. Tighten wheel nuts to a final torque of **640 - 720 N·m (472 - 531 lb ft)** in sequence shown in figure

Torque – 721F Torque Specifications

721F INT

Axle

Wheel mounting bolts	640 - 720 N·m (472 - 531 lb ft)
Front axle mounting bolts	765 - 855 N·m (564 - 631 lb ft)
Rear axle trunnion pin bolts	651 - 678 N·m (480 - 500 lb ft)

Chassis

Cab mounts	773 - 854 N·m (570 - 630 lb ft)
Exhaust stack to hood	36 - 44 N·m (27 - 32 lb ft)
Counterweight mounting bolts	955 - 1075 N·m (704 - 793 lb ft)
Articulation pivot pin bolts	224 - 278 N·m (165 - 205 lb ft)
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Hydraulic tank sight gauge	2.7 - 5.5 N·m (2.0 - 4.1 lb ft)

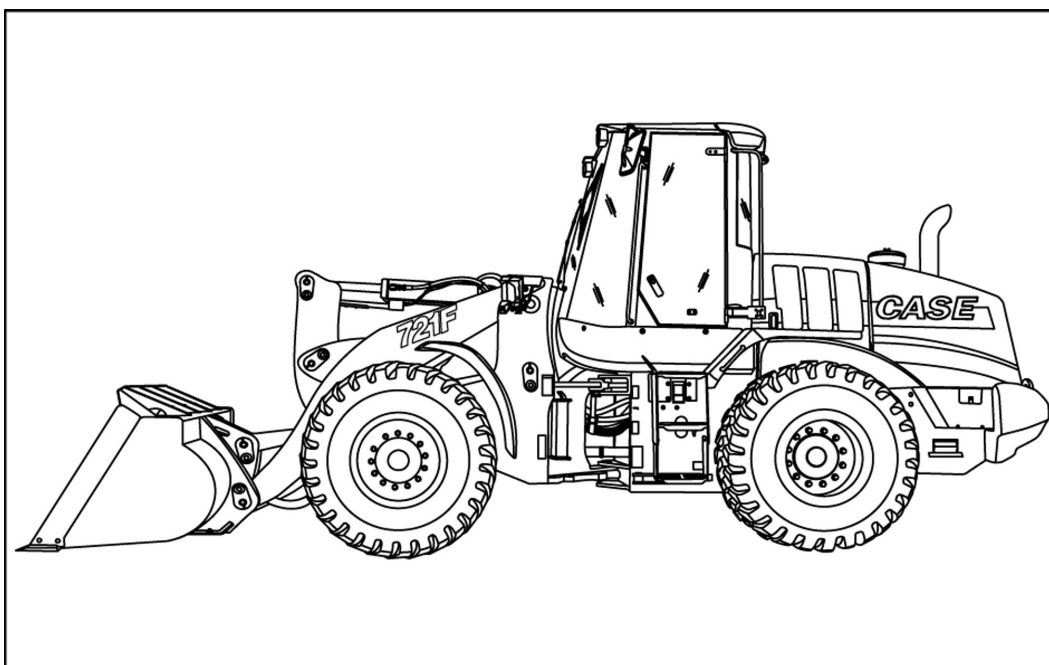
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Coupling to flywheel	53 - 62 N·m (39 - 46 lb ft)
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550R U-joints	75 - 81 N·m (55 - 60 lb ft)
Dust cover mounting bolts	20 - 27 N·m (15 - 20 lb ft)
Flex plate to flywheel bolts	33 - 41 N·m (24 - 30 lb ft)
Carrier bearing bolt	150 - 164 N·m (111 - 121 lb ft)
Drive line mounting bolts	136 - 149 N·m (100 - 110 lb ft)



SERVICE MANUAL

Engine



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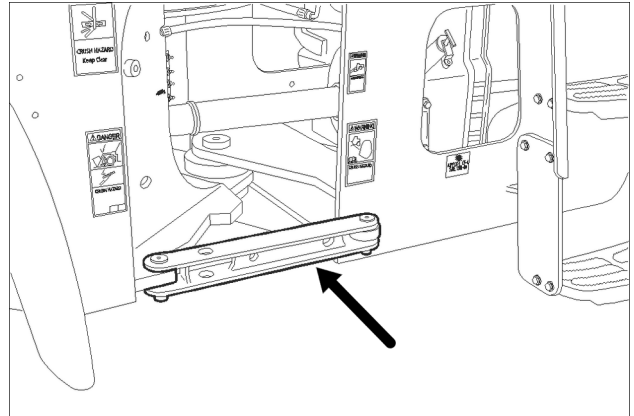
CONSUMABLES INDEX

Consumable	IU	PAGE
CASE Akcela Engine oil 15W-40	Engine - Install	10.001 / 45

Engine - Remove

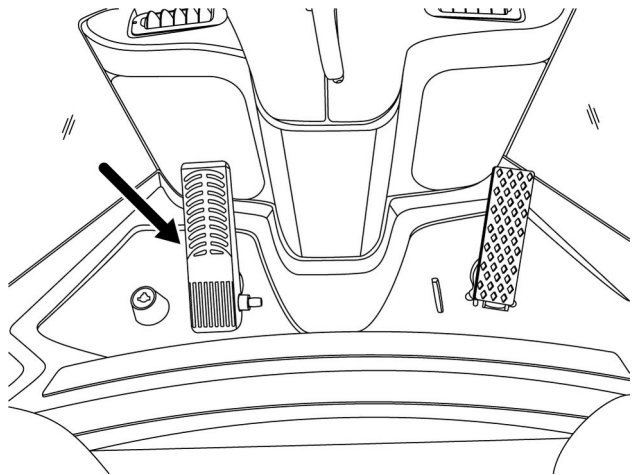
621F INT, 721F INT

1. Park machine on a level surface and lower the bucket to the ground. Put articulation lock in LOCKED position and stop the engine.



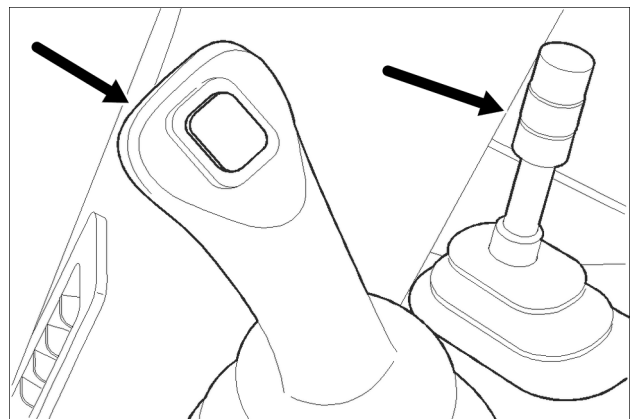
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2. Actuate the brake pedal several times to discharge brake accumulators.



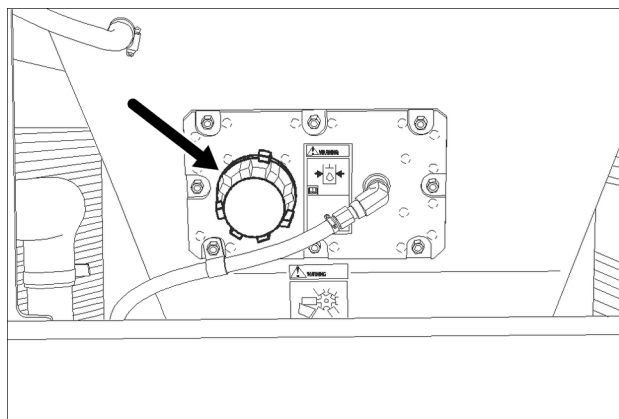
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3. Put key switch in ON position. Pilot control switch must be in the ON position and then move loader control lever(s) back and forth at least 30 times to release any pressure from hydraulic circuit. Put key switch in OFF position.



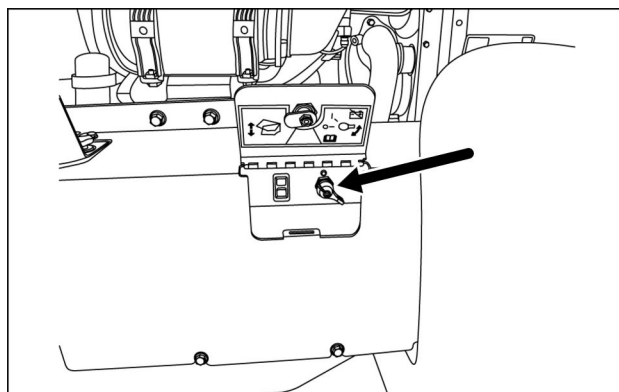
RCPH10WHL119BAL 3

4. Raise grill located above the cooler box just behind the cab. Then slowly loosen the hydraulic reservoir filler cap to release pressure in the reservoir.



RCPH10WHL099BAL 4

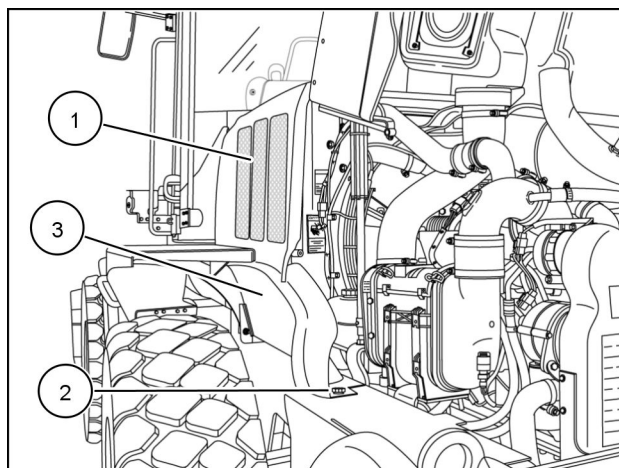
5. Locate the master and hood raise switch by the battery box. Then raise the hood and put the master disconnect switch in the OFF position.



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6. Raise both side panels (1). Then remove the thumb screws (2) and inner fender panels (3).

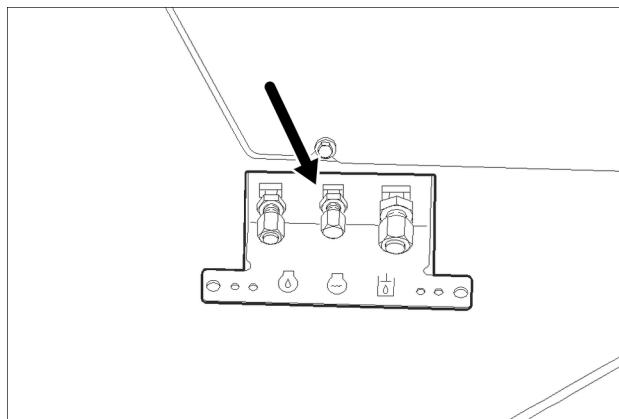
NOTE: Left side of the machine is shown. The operation is similar for the right side.



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7. Place a suitable container below radiator drain, remove radiator cap and coolant drain plug (arrow) to drain engine coolant. Then reinstall drain plug and radiator cap after coolant has drained.

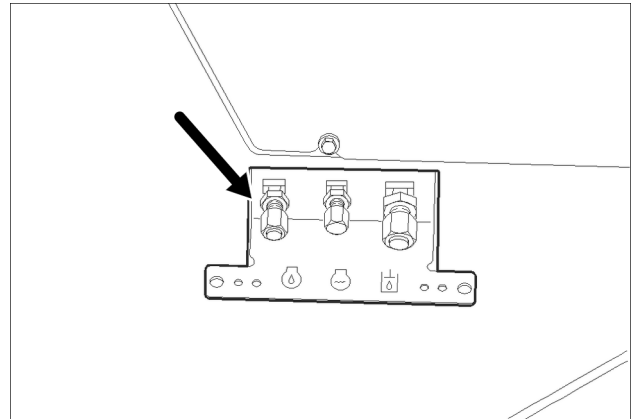
NOTE: See machine specifications for cooling system volume.



RCPH10WHL054BAL 7

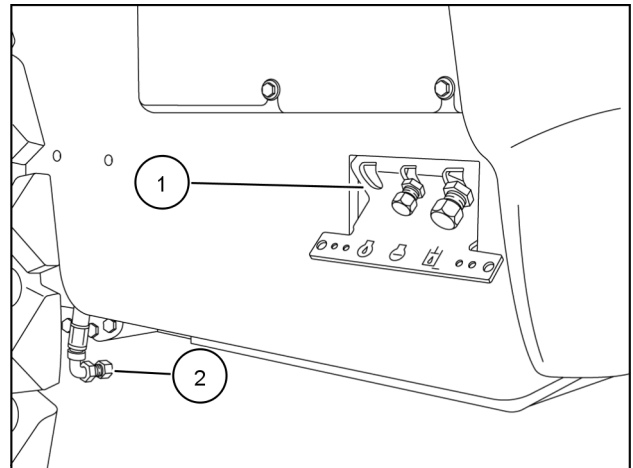
8. Place a suitable container below engine oil drain. Remove drain plug and drain oil into container. Then reinstall drain plug.

NOTE: See machine specifications for engine oil sump volume.



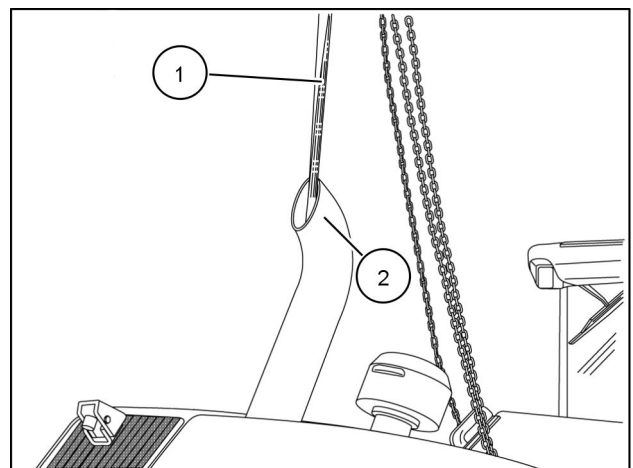
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9. After oil drains, disconnect drain hose from frame by removing jam nut (1). Then pull hose from frame in preparation for engine removal. (2)



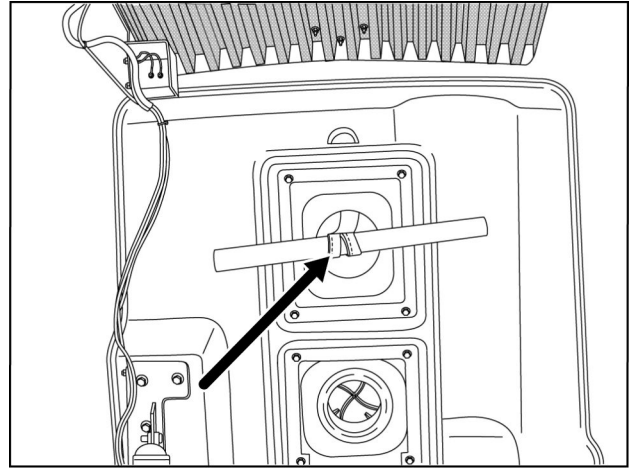
RAPH12WEL0598AA 9

10. Double up a nylon lifting strap (1) and slide through the exhaust stack (2) on the hood.

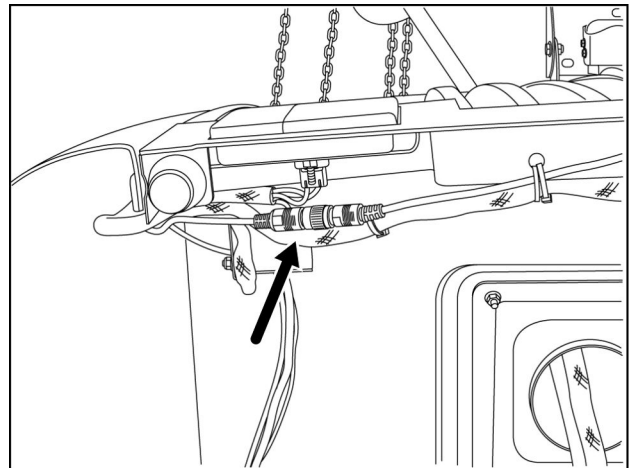


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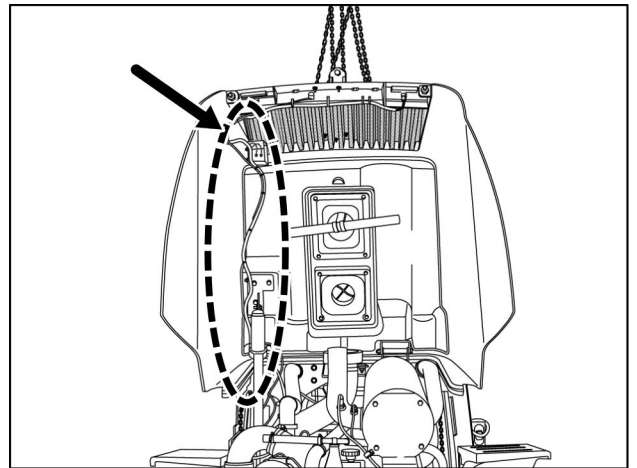
11. Place a bar or pipe through the strap loop inside the hood and attach the strap to a suitable lifting device. Then raise the hood with the strap to release tension on the lifting motor.



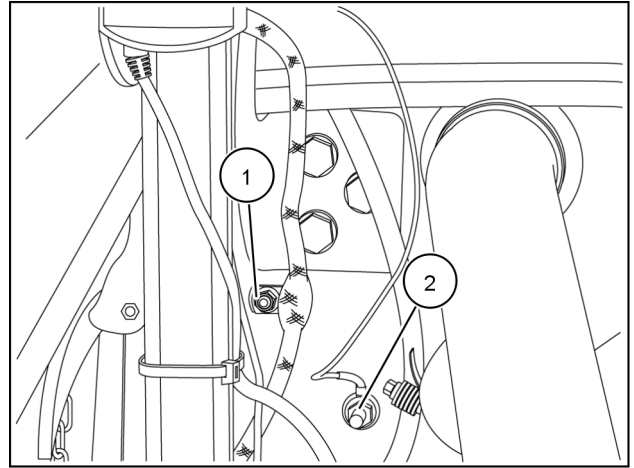
12. Tag and disconnect the camera wire harness (if machine is equipped with a camera.)



13. Cut wire ties and remove camera wire harness from hood. Then place it off to the side in a safe location. (If machine is equipped with a camera.)

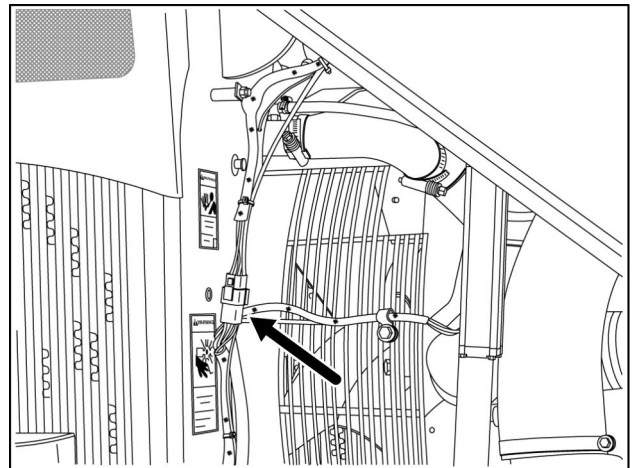


14. Remove mount bolt (1) and backup alarm wiring harness clamp from cooler housing. Then tag and remove hood ground wire (2) from cooler housing.



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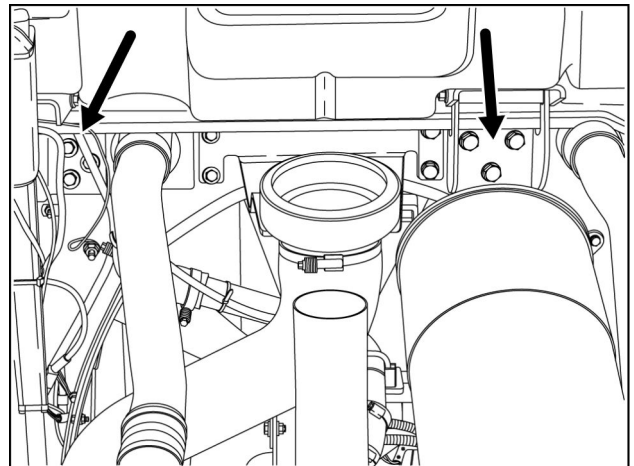
15. Tag and disconnect hood wiring harness connector from rear chassis wiring harness connector.



RAPH12WEL0604AA 15

16. Have another person balance the hood and LOOSEN the hood hinge mounting bolts (arrows) from the cooler frame.

NOTE: Do not remove the hood hinge mounting bolts at this time.



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