T190
TURBO

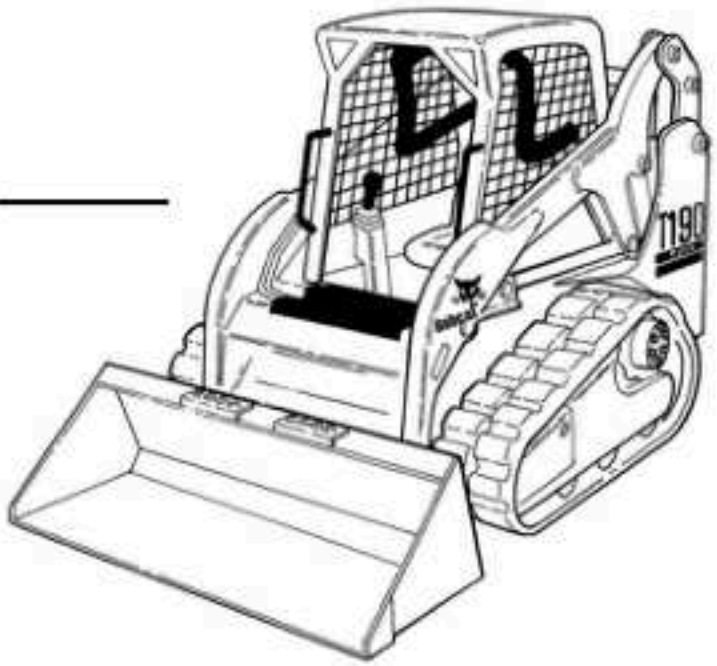
T190
TURBO
HIGH FLOW

Bobcat®

Service Manual

G Series

S/N 527011001 & Above
S/N 527911001 & Above
S/N 527711001 & Above
S/N 527811001 & Above



EQUIPPED WITH BOBCAT INTERLOCK CONTROL SYSTEM (BICS™)

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Ingersoll Rand
Compact Vehicle Technologies
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ACS-ADVANCED CONTROL SYSTEM
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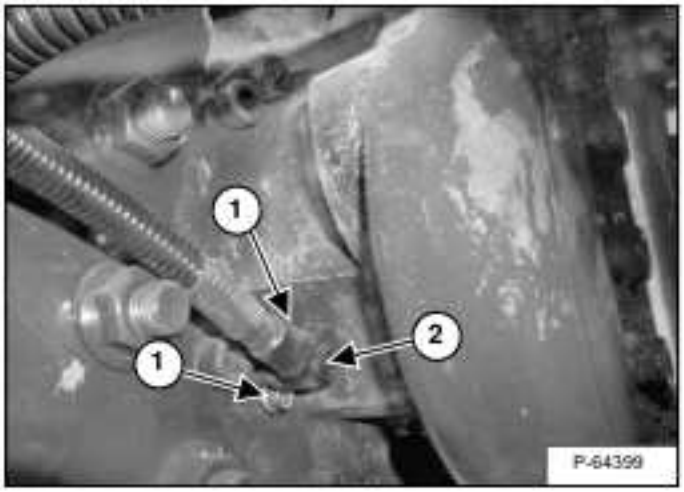
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SPEED SENSOR (SELECTABLE JOYSTICK CONTROL) (SJC) (CONT'D)

Removal and Installation (Cont'd)

Figure 60-170-10

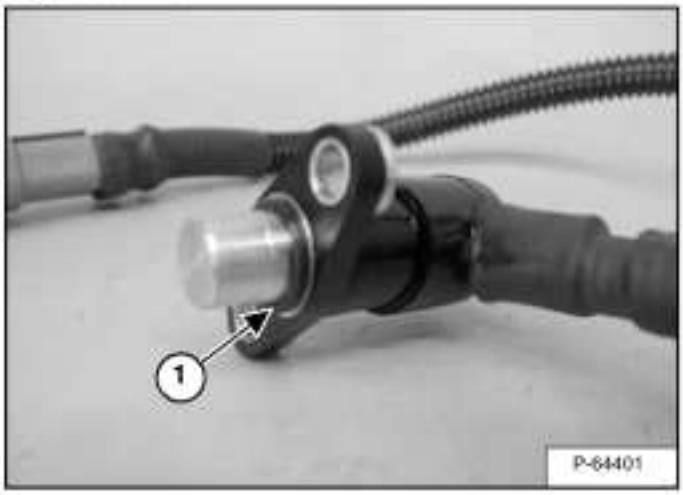


Clean the area around the speed sensor, to prevent contamination from getting into the hydrostatic motor after the speed sensor is removed.

Remove the two speed sensor mount bolts (Item 1) **[Figure 60-170-10]**.

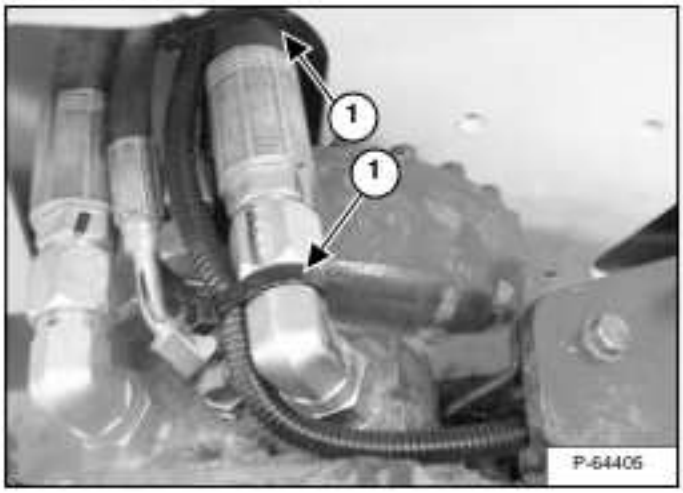
Remove the speed sensor (Item 2) **[Figure 60-170-10]** from the motor.

Figure 60-170-11



Installation: Lubricate the speed sensor O-ring (Item 1) **[Figure 60-170-11]** with oil before installing.
Seat the sensor into the motor port prior to installing the bolts. Tighten down the bolts, alternate tightening from left to right to evenly load the o-ring.
Tighten the speed sensor mount bolts to 88 in.-lbs. (9,94 Nm) torque.

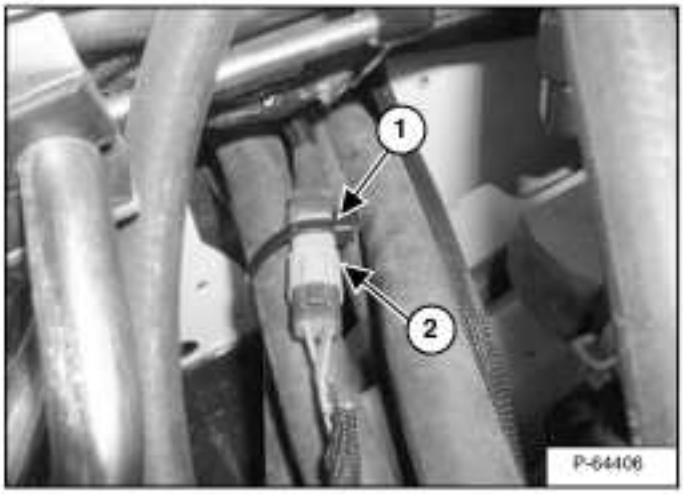
Figure 60-170-12



Remove any zip ties (Item 1) **[Figure 60-170-12]** fastening the wiring harness.

Installation: Ensure wire harness is properly secured with zip ties and routed in such a way to prevent damage to the wire harness during use. Trial fit access cover to ensure clearance with harness routing.

Figure 60-170-13



Remove the zip tie (Item 1) **[Figure 60-170-13]** from the wiring harness.

Disconnect the speed sensor harness connector (Item 2) **[Figure 60-170-13]** from the loader harness connector.

Remove the speed sensor from the loader.

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SYSTEM TROUBLESHOOTING CHART (CONT'D)

Gauge Pressure Related Troubleshooting

Normal compressor suction (low side) and discharge (high side) pressure at ambient temperatures of 86-96 degrees F (30-38 degrees C) and compressor speed of approximately 2000 RPM are:

High pressure side pressure: 210-265 PSI

Low pressure side pressure: 15-33 PSI

As a rule of thumb the high side pressure will be around eight times greater then the low side pressure.

Possible Cause	Inspection	Solution
Low pressure side Too high.	The low pressure side pressure normally becomes too high when the high pressure side pressure is too high. As this is explained below, the following inspection is only used when the low pressure side is too high.	
1. Expansion valve opens too far.	Frost is present on the suction hose.	Replace expansion valve.
2. Dective compressor.	The high and low pressure side gauge pressures equalize when the compressor is engaged.	Replace compressor.
Low pressure side Too low.		
1. Low refrigerant charge.	The high side pressure will be low and bubbles may be present in sight glass on receive drier.	Repair any leaks and recharge the refrigerant to the correct level.
2. Clogged or closed expansion valve.	The expansion valve's inlet side is frosted. Moisture or other Contaminants can be the cause.	Clean or replace the expansion Valve.
3. Restriction between drier and expansion valve.	Frost on the line between drier and expansion valve. A Negative low pressure reading may be shown.	Flush system or replace hose.
High pressure side Too high.		
1. Poor condenser performance.	Dirty or clogged condenser fins. Condenser fans not Operating.	Clean fins, and/or repair the fan.
2. Excessive refrigerant.	The high pressure side pressure will be high.	Use refrigerant recovery equipment to capture excess refrigerant. Charge to the correct refrigerant level.
3. Excessive oil charge.	The high pressure side will be high.	Evacuate system. Remove oil from condenser and compressor. Measure oil from compressor and add correct oil charge back into compressor. Flush system with nitrogen. Replace drier.
4. Air in system.	Pressure is high on both high and low sides.	Evacuate and recharge with Refrigerant.
5. Restriction in drier, condenser or high pressure line.	High pressure side will be high, and low pressure side will be low.	Evacuate and flush system replacing defective parts.
High pressure side Too low.		
1. Low refirgerant charge.	The high side pressure will be low and bubbles may be present in sight glass on receive drier.	Repair any leaks and recharge the refrigerant to the correct level.

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All dimensions are given in inches. Respective metric dimensions are given in millimeters enclosed by parentheses.

Valve Springs

Free Length	1.6417-1.6614 (41,7-42,2)
Allowable Limit	1.622 (41,2)
Fitted Length	1.378 (35,0)
Compress to Fitted Length	26.4 lbs. (117,6 N)
Allowable Limit	22.5 lbs. (100,0 N)
Tilt Allowable Limit	0.039 (1,0)

Valve Timing

Intake Valve (Open)	9 degrees B.T.D.C.
(Close)	45 degrees A.B.D.C.
Exhaust Valve (Open)	50 degrees B.B.D.C.
(Close)	12 degrees A.T.D.C.

Rocker Arms

O.D. of Rocker Arm Shaft	0.5501-0.5506 (13,973-13,984)
I.D. of Rocker Arm Bushings	0.5512-0.5519 (14,0-14,018)
Clearnace Between Rocker Arm & Bushing	0.0006-0.0018 (0,016-0,045)
Allowable Limit	0.0039 (0,1)

Camshaft

Journal O.D.	1.5722-1.5728 (39.934-39,95)
Bearing I.D.	1.5748-1.5758 (40,0-40,025)
Oil Clearance	0.002-0.0036 (0,05-0,091)
Allowable Limit	0.0059 (0,15)
Alignment Allowable Limit	0.0004 (0,01)
Cam Lobe Height (Intake)	1.3346 (33,90)
Allowable Limit (Intake)	1.3327 (33,85)
Cam Lobe Height (Exhaust)	1.3346 (33,90)
Allowable Limit (Exhaust)	1.3327 (33,85)
Side Clearance	0.0028-0.0087 (0,07-0,22)
Allowable Limit	0.0118 (0,3)

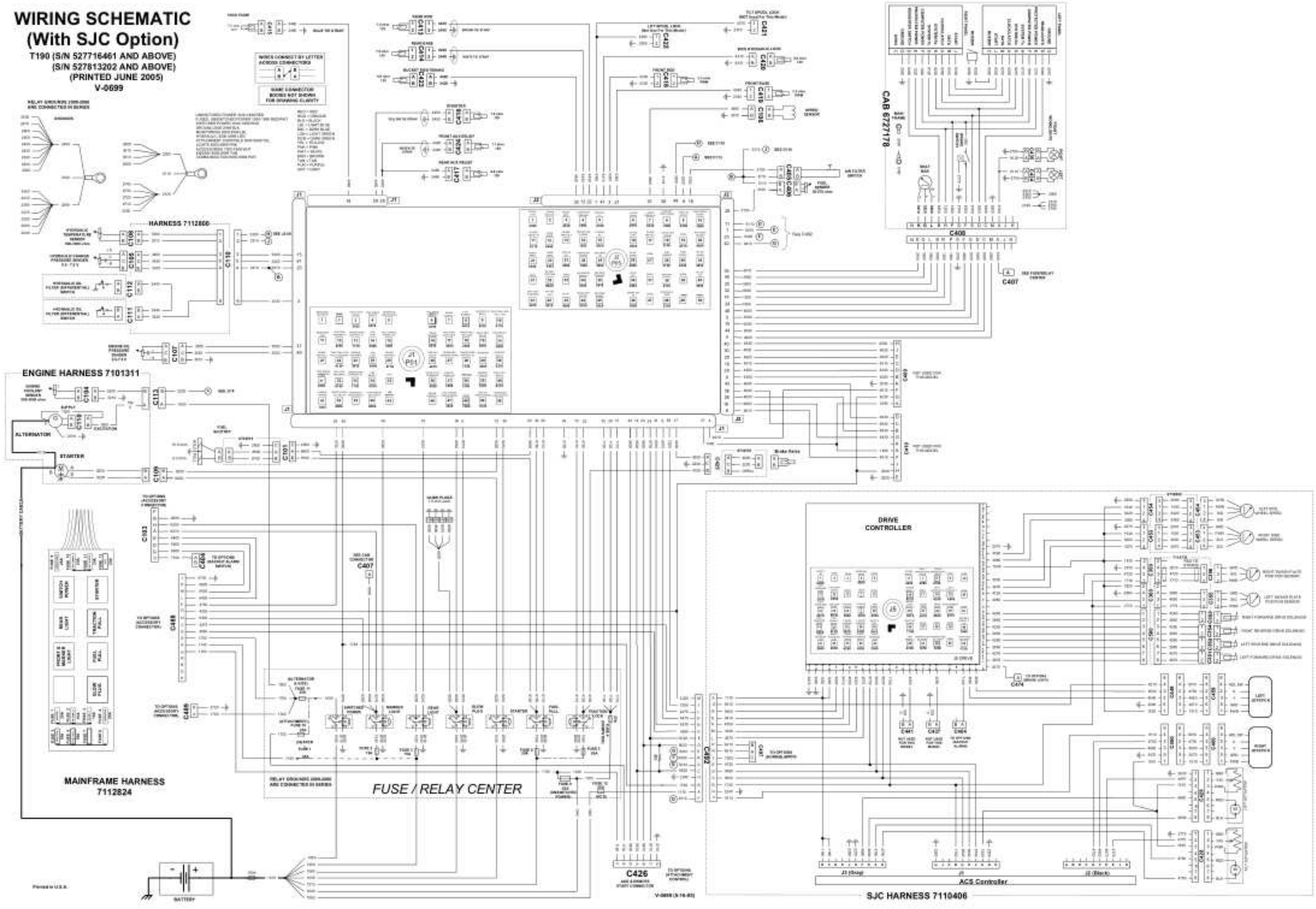
Tappet

Clearance Between Tappet & Guide	0.0008-0.0024 (0,02-0,062)
Allowable Limit	0.0028 (0,07)
Tappet O.D.	0.9433-0.9441 (23,959-23,98)
Tappet Guide I.D.	0.9449-0.9457 (24,0-24,021)

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WIRING SCHEMATIC
(With SJC Option)

T190 (S/N 527716461 AND ABOVE)
(S/N 527813202 AND ABOVE)
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