9060 DIAGNOSTIC FAULT CODE QUICK REFERENCE TABLE

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
P0225	Traction Pedal Analog Sensor 1 - Open Circuit	TEC 5004	This fault is reported when the primary TEC senses no device is connected to input pin 28 on connector P74.	Analog channel reading on traction potentiometer sensor channel is out of range indicating an open circuit. Traction is disabled until the ignition key is cycled.	1) Use the InfoCenter to verify sensor movement (TRACTION INPUTS–TR.PEDAL SIGNAL 1). 2) If no voltage is displayed: A. Check the traction pedal wiring and connector. B. Test the voltage at the pedal. 3) Check the wiring to the sensor. 4) Test the traction pedal assembly. 5) Swap the primary TEC with a known good unit and reprogram.
P0227	Traction Pedal Analog Sensor 1 - Short to Ground	TEC 5004	This fault is reported when traction Pedal Analog Sensor 1 is reading a voltage outside the range it was designed to operate, indicating a short to ground.	Analog channel reading on traction potentiometer sensor channel is out of range indicating a short to ground. Traction is disabled until the ignition key is cycled.	1) Use the InfoCenter to verify sensor movement (TRACTION INPUTS–TR.PEDAL SIGNAL 1). 2) If no voltage is displayed: A. Check the traction pedal wiring and connector. B. Test the voltage at the pedal. 3) Check the wiring to the sensor. 4) Test the traction pedal assembly. 5) Swap the primary TEC with a known good unit and reprogram.
P0460	Fuel level Sensor - Open Circuit	TDM 2002	This fault is reported when the status display detects that the fuel level sensor reading is not within the normal operating range.	Analog channel reading on fuel level sensor channel is out of range indicating an open circuit.	1) Check sender wiring and connector. 2) Test float gauge function
P0461	Fuel level Sensor - Short to Ground	TDM 2002	This fault is reported when a short to ground is detected on the fuel level sensor circuit.	Analog channel reading on fuel level sensor channel is out of range indicating a short to ground.	1) Check sender wire and connector. 2) Test float gauge function

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
P0575	Cruise Control Switch Correlation Fault	TDM 2002	This fault is reported when the cruise engage (Cruise set) input is active but the cruise enable (Cruise ON/OFF) input is off.	The cruise engage input is active but the cruise enable input is not. Cruise is not enabled.	1) Check switch wiring and connector. 2) Test the cruise control ON/OFF/SET switch
P057C	Brake Pedal Analog Sensor 1 - Short to Ground	TEC 5004	This fault is reported when the primary TEC detects that input pin 17 on connector P74 (Brake Pedal Analog Sensor 1) is shorted to ground.	Analog channel reading on brake sensor channel is out of range indicating an open circuit. Traction is disabled until the ignition key is cycled.	1) Use the InfoCenter to verify sensor operation (TRACTION INPUTS-BRAKE PEDAL SIGNAL). 2) If no voltage is displayed: A. Check the brake pedal position sensor wiring and connector. B. Test the sensor wiring. 3) Test the brake pedal position sensor
P057D	Brake Pedal Analog Sensor 1 - Open Circuit	TEC 5004	This fault is reported when the primary TEC detects that input pin 17 on connector P74 (Brake Pedal Analog Sensor 1) is open.	Analog channel reading on traction sensor channel is out of range indicating a short to ground. Traction is disabled until the ignition key is cycled	1) Use the InfoCenter to verify sensor operation (TRACTION INPUTS-BRAKE PEDAL SIGNAL). 2) If no voltage reading is displayed: A. Check the brake pedal position sensor wiring and connector. B. Test the sensor wiring. 3) Test the brake pedal position sensor

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
P05E0	Brake Pedal Analog Sensor 1 - Analog to Digital Correlation Fault	TEC 5004	This fault is reported when the digital and analog inputs for Brake Pedal Analog Sensor 1 do not match.	Analog channel reading on the brake pedal does not correlate to where the digital input sensor reads. Traction is disabled until the ignition key is cycled.	1) Make sure the brake pedal moves freely to its full rest (up) position. 2) Use the InfoCenter to verify neutral switch operation (TRACTION INPUTS-BRAKE NEUTRAL ON). 3) Use the InfoCenter to verify position sensor operation (TRACTION INPUTS-BRAKE PEDAL SIGNAL). 4) If no voltage reading is displayed: A. Check the brake pedal position sensor wiring and connector. B. Test the position sensor wiring. 5) Check the brake pedal neutral switch wiring and connector. 6) Check the neutral switch wiring. 7) Test the brake pedal neutral switch. 8) Test the brake pedal position sensor
P0615	Start Relay - Open Circuit	TEC 5004	This fault is reported when an open is detected on the start circuit from the primary TEC controller to the Yanmar ECU.	Start Relay voltage is greater than the open load voltage applied during board-level diagnostics.	1) Check the engine start output circuit wiring and all of the output circuit connectors. 2) Test the engine start output circuit wiring between the TEC and the engine ECU. 3) Swap the primary TEC with a known good unit and reprogram.

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
P0616	Start Relay – Short to Ground/Overcurrent	TEC 5004	This fault is reported when an overcurrent is detected on the circuit from the primary TEC to the Yanmar ECU. This Indicates a short to ground.	Short circuit between Start Relay and ground.	1) Check the engine start output circuit wiring and all of the output circuit connectors. 2) Test the engine start output circuit wiring between the TEC and the engine ECU. 3) Swap the primary TEC with a known good unit and reprogram.
P0617	Start Relay - Short to Battery	TEC 5004	This fault is reported when low current is detected on the Start Relay circuit. It indicates a short to 12V power.	Short circuit between Start Relay and the battery.	1) Check the engine start output wiring and all of the output circuit connectors. 2) Test the engine start output circuit wiring between the TEC and the engine ECU. 3) Swap the primary TEC with a known good unit and reprogram.
P06E9	Starter Timeout	TEC 5004	This fault is reported when the starter has been engaged for more than 15 seconds	Starter output is disabled.	1) Ensure that key switch is not stuck in start position. 2) Test key switch and replace if necessary. 3) Test start relay and replace if necessary
P0939	Hydraulic Oil Temperature Sensor - Short to Ground	TDM 2002	This fault is reported when a short to ground is detected on the hydraulic temperature sensor circuit.	Analog channel reading on hydraulic temp sensor channel is out of range indicating a short to ground.	1) Check temperature sender wiring and connector. 2) Test temperature sender.
P0940	Hydraulic Oil Temperature Sensor - Open Circuit	TDM 2002	This fault is reported when an open is detected on the hydraulic temperature sensor circuit.	Analog channel reading on hydraulic temp sensor channel is out of range indicating an open circuit.	1) Check temperature sender wiring and connector. 2) Test temperature sender.

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
P100C	Engine Coolant Temperature Above Threshold - PTO Kill	Yanmar ECU	This fault is reported when the engine coolant temperature has reached a critical operating level that requires the PTO to be disabled.	Engine temp must be greater than 105 °C. PTO will be disabled.	1) Check fan. 2) Check airflow passages. 3) Check coolant. 4) Check temperature sender wiring and connector. 5) Check temperature sender
P100D	Engine Coolant Temperature Above Threshold - Engine Kill	Yanmar ECU	This fault is reported when engine coolant temperature has reached a critical operating level that requires the engine to be shut down.	Engine temp must be greater than 115 °C. Engine will be shut down.	1) Check fan. 2) Check airflow passages. 3) Check coolant. 4) Check temperature sender wiring and connector. 5) Check temperature sender
P1104	Traction Coil 1 FWD - Overcurrent	TEC 5004	This fault is reported when an overcurrent is detected on the Traction Coil 1 FWD circuit. Indicates a short to ground.	Short circuit between Traction Coil 1 FWD and ground.	1) Use the InfoCenter to verify the traction coil operation (TRACTION OUTPUTS-FRONT FWD HYDRO). 2) If no amperage reading is displayed: A. Check the traction coil wiring and connector. B. Test the traction coil wiring. 3) Test the traction coil. 4) Swap the primary TEC with a known good unit and reprogram.

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
P110C	Traction Coil (front pump forward valve, C1) Validation Failure - Current Converge	TEC 5004	This fault is reported when an unexpected variance between the desired level of current to the traction coil and the actual level of current to the traction coil is detected. It is expected that the actual level of coil current will track the desired level of current set by the drive-by-wire module.	The current feedback on the coil is not converging on the current set point. Traction is disabled until the key switch is cycled.	1) Use the InfoCenter to verify the traction coil operation (TRACTION OUTPUTS-FRONT FWD HYDRO). 2) If no amperage reading is displayed: A. Check the traction coil wiring and connector. B. Test the traction coil wiring. 3) Test the traction coil. 4) Swap the primary TEC with a known good unit and reprogram.
P110D	Traction Coil (front pump forward valve, C1) Validation Failure - PWM Converge	TEC 5004	This fault is reported when either of 2 PWM fault conditions occurs. The first check is to confirm that the PWM duty cycle across the coil is decreasing when the desired current to the coil is 0. The second check is to verify that the PWM duty cycle across the coil is not greater than the max allowed limit.	Traction is disabled until the key switch is cycled.	1) Use the InfoCenter to verify the traction coil operation (TRACTION OUTPUTS-FRONT FWD HYDRO). 2) If no amperage reading is displayed: A. Check the traction coil wiring and connector. B. Test the traction coil wiring. 3) Test the traction coil. 4) Swap the primary TEC with a known good unit and reprogram.

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
P1114	Traction Coil (front pump, reverse valve, C2) Overcurrent	TEC 5004	This fault is reported when an overcurrent is detected on the Traction Coil 1 FWD circuit. This indicates a short to ground.		1) Use the InfoCenter to verify the traction coil operation (TRACTION OUTPUTS-FRONT REV HYDRO). 2) If no amperage reading is displayed: A. Check the traction coil wiring and connector. B. Test the traction coil wiring. 3) Test the traction coil. 4) Swap the primary TEC with a known good unit and reprogram.
P111C	Traction Coil (front pump reverse valve, C2) Validation failure-Current converge	TEC 5004	This fault is reported when an unexpected variance between the desired level of current to the traction coil and the actual level of current to the traction coil is detected.	Traction is disabled until the key switch is cycled	1) Use the InfoCenter to verify the traction coil operation (TRACTION OUTPUTS-FRONT REV HYDRO). 2) If no amperage reading is displayed: A. Check the traction coil wiring and connector. B. Test the traction coil wiring. 3) Test the traction coil. 4) Swap the primary TEC with a known good unit and reprogram

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
P111D	Traction Coil (front pump reverse valve, C2) Validation Failure - PWM Converge	TEC 5004	This fault is reported when either of 2 PWM fault conditions occurs. The first check is to confirm that the PWM duty cycle across the coil is decreasing when the desired current to the coil is 0. The second check is verify that the PWM duty cycle across the coil is not greater than the max allowed limit.	Traction is disabled until the key switch is cycled.	1) Use the InfoCenter to verify the traction coil operation (TRACTION OUTPUTS-FRONT REV HYDRO). 2) If no amperage reading is displayed: A. Check the traction coil wiring and connector. B. Test the traction coil wiring. 3) Test the traction coil. 4) Swap the primary TEC with a known good unit and reprogram.
P1124	Traction Coil (rear pump forward valve, C1) Overcurrent	TEC 5004	This fault is reported when overcurrent is detected. This indicates a short to ground.		1) Use the InfoCenter to verify the traction coil operation (TRACTION OUTPUTS-REAR FWD HYDRO). 2) If no amperage reading is displayed: A. Check the traction coil and wiring. B. Test the traction coil wiring. 3) Test the traction coil. 4) Swap the primary TEC with a known good unit and reprogram.

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
P112C	Traction Coil (rear pump forward valve, C1) Validation Failure - Current Converge	TEC 5004	This fault is reported when an unexpected variance between the desired level of current to the traction coil and the actual level of current to the traction coil is detected. It is expected that the actual level of coil current will track the desired level of current set by the drive-by-wire module.	Traction is disabled until the key switch is cycled.	1) Use the InfoCenter to verify the traction coil operation (TRACTION OUTPUTS-REAR FWD HYDRO). 2) If no amperage reading is displayed: A. Check the traction coil wiring and connector. B. Test the traction coil wiring. 3) Test the traction coil. 4) Swap the primary TEC with a known good unit and reprogram.
P112D	Traction Coil (rear pump forward valve, C1) - Validation Failure - PWM Converge	TEC 5004	This fault is reported when either of 2 PWM fault conditions occurs. The first check is to confirm that the PWM duty cycle across the coil is decreasing when the desired current to the coil is 0. The second check is verify that the PWM duty cycle across the coil is not greater than the max allowed limit.	Traction is disabled until the key switch is cycled.	1) Use the InfoCenter to verify the traction coil operation (TRACTION OUTPUTS-REAR FWD HYDRO). 2) If no amperage reading is displayed: A. Check the traction coil connector. B. Test the traction coil wiring. 3) Test the traction coil. 4) Swap the primary TEC with a known good unit and reprogram.

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
P1134	Traction Coil (rear pump reverse valve, C2) Overcurrent	TEC 5004	This fault is reported when an overcurrent is detected. Indicates a short to ground.		1) Use the InfoCenter to verify the traction coil operation (TRACTION OUTPUTS-REAR REV HYDRO). 2) If no amperage reading is displayed: A. Check the traction coil wiring and connector. B. Test the traction coil wiring. 3) Test the traction coil. 4) Swap the primary TEC with a known good unit and reprogram.
P113C	Traction Coil (rear pump reverse valve, C2) Current Converge	TEC 5004	This fault is reported when an unexpected variance between the desired level of current to the traction coil and the actual level of current to the traction coil is detected.	Traction is disabled until the key switch is cycled	1) Use the InfoCenter to verify the traction coil operation (TRACTION OUTPUTS-REAR REV HYDRO). 2) If no amperage reading is displayed: A. Check the traction coil wiring and connector. B. Test the traction coil wiring. 3) Test the traction coil. 4) Swap the primary TEC with a known good unit and reprogram.

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
P113D	Traction Coil 2 REV - Validation Failure - PWM Converge	TEC 5004	This fault is reported when either of 2 PWM fault conditions occurs. The first check is to confirm that the PWM duty cycle across the coil is decreasing when the desired current to the coil is 0. The second check is verify that the PWM duty cycle across the coil is not greater than the max allowed limit.	Traction is disabled until the key switch is cycled	1) Use the InfoCenter to verify the traction coil operation (TRACTION OUTPUTS-REAR REV HYDRO). 2) If no amperage reading is displayed: A. Check the traction coil wiring and connector. B. Test the traction coil wiring. 3) Test the traction coil. 4) Swap the primary TEC with a known good unit and reprogram.
P114C	Front Hydraulic Circuit - Charge Pressure Low	TEC 5004	This fault is reported when the charge pressure in the Front Traction Circuit is less than 1103 kPa (160 psi)	If fault P115C is also present, a charge issue exists outside of the traction pump- Steering and/or lift operation will also be affected.	1) Use the InfoCenter to verify pressure sensor reading (TRACTION INPUTS-FRONT TRACTION). 2) If no pressure reading is displayed: A. Check front pressure sensor (left side of traction pump) wiring and connector. B. Test the pressure sensor wiring. C. Test the pressure sensor. 3) Perform front traction pump (P1) flow and relief valve test
P114D	Hydraulic Fluid - Over Temp	TDM 2002	This fault is reported when the hydraulic oil temperature has exceeded 95˚ C (203˚ F)	Maximum traction speed is limited	1) Check the hydraulic valve joystick is not stuck in an enable position. 2) Reduce traction speed. 3) Allow hydraulic fluid to cool below 90˚ C (194˚ F)

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
P115C	Rear Traction Hydraulic Circuit - Charge Pressure Low	TEC 5004	This fault is reported when the charge pressure in the Rear Traction Circuit is less than 1103 kPa (160 psi)	If fault P114C is also present, a charge issue exists outside of the traction pump- Steering and/or lift operation will also be affected	1) Use the InfoCenter to verify pressure sensor reading (TRACTION INPUTS-REAR TRACTION). 2) If no pressure reading is displayed: A. Check rear pressure sensor. B. Test the pressure sensor wiring. 3) Test the pressure sensor. 4) Perform rear traction pump (P2) flow and relief valve test
P210E	Traction Pedal Sensor/Switch Analog vs Analog conflict	TEC 5004	This fault is reported when the two analog pedal signals are reporting differing positions outside of an expected variance	Traction is disabled until pedal position is returned to neutral (rest)	1) Use the InfoCenter to verify sensor movement (TRACTION INPUTS-TR.PEDAL SIGNAL 1 and TR. PEDAL SIGNAL 2). 2) If one or both voltage readings are not displayed: A. Check the traction pedal wiring and connector. B. Test the sensor wiring. 3) Test the traction pedal assembly
P2130	Traction Pedal Analog Sensor 2 - Short To Ground	TEC 5004	This fault is reported when Traction Pedal Analog Sensor 2 is reading a voltage outside the range it was designed to operate, indicating a short to ground.	Traction is disabled until the key switch is cycled	1) Use the InfoCenter to verify sensor movement (TRACTION INPUTS-TR.PEDAL SIGNAL 1 and TRACTION INPUTS-TR PEDAL SIGNAL 2). 2) If one or both voltage readings are not displayed: A. Check the traction pedal wiring and connector. B. Test the sensor wiring. 3) Test the traction pedal assembly

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
P2132	Traction Pedal Analog Sensor 2 - Open Circuit	TEC 5004	This fault is reported when Traction Pedal Analog Sensor 2 is reading a voltage outside the range it was designed to operate, indicating an open circuit	Traction is disabled until key switch is cycled	1) Use the InfoCenter to verify sensor movement (TRACTION INPUTS- TR PEDAL SIGNAL 2). 2) If no voltage reading is displayed: A. Check the traction pedal wiring and connector. B. Test the sensor wiring. 3) Test the traction pedal assembly
P2152	Wheel Speed Sensor Failure	TEC 5004	This fault is reported when one of the wheel speed sensors has failed.	PTO is disabled and machine enters limp mode after coming to a stop	1) Use the InfoCenter to verify sensor readings (TRACTION INPUTS-FRONT GROUND and TRACTION INPUTS-REAR GROUND). 2) If no speed reading is displayed: A. Check the speed sensor wiring and connector. B. Test the sensor wiring. 3) Replace speed sensor
P2503	Alternator - Charging Too Low	TEC 5004	This fault is reported when the charging system (alternator) is producing less than 8.8 volts		1) Use the status display to check alternator voltage regulator output. 2) Check and clean battery connections. 3) Test and charge battery. 4) Check alternator belt condition and belt tension. 5) Check wiring and connectors. 6) Test the alternator wiring. 7) Test the alternator using the Yanmar TNV (Tier 4) Service Manual

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
P2504	Alternator - Charging Too High	TEC 5004	This fault is reported when the charging system (alternator) is producing more than 16.3 volts		1) Use the status display to verify system voltage with the engine operating at 2,300 rpm (minimum). 2) Test the alternator using the Yanmar TNV (Tier 4) Service Manual
P2530	Key Start/Run Correlation Fault	TEC 5004	This fault is reported when the key start input is active but the key run input is off	Machine will shut down since key run input is not active	1) Use the InfoCenter to verify the run and start circuit inputs (ENGINE RUN INPUTS-KEY RUN OFF and ENGINE RUN INPUTS-KEY START ON). 2) Check the key switch circuit wiring and connectors at the key switch and the TEC. 3) Test the key switch wiring between the key switch and the TEC. 4) Check the key switch
C1013	Engine Run/Fuel Pump Output - Short to Battery	TEC 5004	This fault is reported when low current is detected on the engine run/fuel pump output. It typically indicates a short to 12V.		1) Check the engine run/fuel pump output circuit wiring and all of the output circuit connectors. 2) Test the engine run/fuel pump output circuit wiring. 3) Test the electric fuel pump. 4) Swap the primary TEC with a known good unit and reprogram.
C1014	Engine Run/Fuel Pump - Short to Ground/Overcurrent	TEC 5004	This fault is reported when overcurrent is detected on the engine run/fuel pump output. Indicates short to ground.		1) Check the engine run/fuel pump output circuit wiring and all of the output circuit connectors. 2) Test the engine run/fuel pump output circuit wiring. 3) Test the electric fuel pump. 4) Swap the primary TEC with a known good unit and reprogram.

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
C1015	Engine Run/Fuel Pump Open - Open Circuit	TEC 5004	This fault is reported when an open circuit is detected on the Engine Run/Fuel Pump output		1) Check the engine run/fuel pump output circuit wiring and all of the output circuit connectors. 2) Test the engine run/fuel pump output circuit wiring. 3) Test the electric fuel pump. 4) Swap the primary TEC with a known good unit and reprogram.
C1020	Pbrake Disengage - Fault Undetermined	TEC 5004	This fault is reported when the fault type is undetermined due to hardware restrictions. Cycling the output will allow the software to determine whether the fault is because of a short to battery, short to ground/overcurrent, or an open circuit.		1) Cycle the parking brake switch ON and OFF (with the key switch in the RUN position) to allow the software to determine the fault type
C1023	Parking Brake Disengage Output - Short to Battery	TEC 5004	This fault is reported when low current has been detected on the parking brake disengage output. Typically, this indicates a short to a 12V source.		1) Check the parking brake disengage output circuit wiring and all of the output circuit connectors. 2) Test the parking brake disengage output circuit wiring. 3) Test the hydraulic solenoid valve SV2 coil. 4) Swap the primary TEC with a known good unit and reprogram.

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
C1024	Parking Brake Disengage Output - Overcurrent	TEC 5004	This fault is reported when an overcurrent is detected on the parking brake disengage output circuit. Typically, this indicates a short to a ground.		1) Check the parking brake disengage output circuit wiring and all of the output circuit connectors. 2) Test the parking brake disengage output circuit wiring. 3) Test the hydraulic solenoid valve SV2 coil. 4) Swap the primary TEC with a known good unit and reprogram.
C1025	Parking Brake Disengage Output - Open Circuit	TEC 5004	This fault is reported when an open circuit is detected on the parking brake disengage output circuit		1) Check the parking brake disengage output circuit wiring and all of the output circuit connectors. 2) Test the parking brake disengage output circuit wiring. 3) Swap the primary TEC with a known good unit and reprogram.
C1093	Audible alarm - Short to Battery	TDM 2002	This fault is reported when low current is detected on the audible alarm output circuit. Indicates a short to a 12V source.		1) Check the audible alarm output circuit wiring and all of the circuit connectors. 2) Test the audible alarm output circuit wiring. 3) Test the audible alarm. 4) Replace TDM
C1094	Audible alarm - Short to Ground/Overcurrent	TDM 2002	This fault is reported when overcurrent is detected on the audible alarm output circuit. Indicates a short to ground.		1) Check the audible alarm output circuit wiring and all of the output circuit connectors. 2) Test the audible alarm output circuit wiring. 3) Test the audible alarm. 4) Replace TDM

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
C1095	Audible alarm - Open Circuit	TDM 2002	This fault is reported when an open circuit is detected on the audible alarm output.		1) Check the audible alarm output circuit wiring and all of the output circuit connectors. 2) Test the audible alarm output circuit wiring. 3) Test the audible alarm. 4) Replace TDM
C10A3	Parking Brake Light Output - Short to Battery	TDM 2002	This fault is reported when low current is detected on the Parking Brake Light output Indicates a short to a 12V source.		1) Check the parking brake light output circuit wiring and all of the output circuit connectors. 2) Test the parking brake output circuit wiring. 3) Test the parking brake light function. 4) Replace TDM
C10A4	Parking Brake Light Output - Short to Ground/Overcurrent	TDM 2002	This fault is reported when overcurrent is detected on the Parking brake light output. Indicates a short to ground.	.	1) Check the parking brake light output circuit wiring and all of the output circuit connectors. 2) Test the parking brake light output circuit wiring. 3) Test the parking brake light function. 4) Replace TDM
C10A5	PBrake Light Out - Open Circuit	TDM 2002	This fault is reported when an open circuit is detected on the Parking Brake Light Output circuit.		1) Check the parking brake light output circuit wiring and all of the output circuit connectors. 2) Test the parking brake light output circuit wiring. 3) Test the parking brake light function. 4) Replace TDM

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
C10B3	Optional Brake Controller Output - Short to Battery	TEC 5004	This fault is reported when low current is detected on the optional Brake Controller Output. Indicates a short to a 12V source.		1) Check the optional brake controller output circuit wiring and all of the output circuit connectors. 2) Test the optional brake controller output circuit wiring. 3) Test the optional brake controller (refer to manufacturer documentation supplied with brake controller). 4) Swap the primary TEC with a known good unit and reprogram.
C10B4	Optional Brake Controller Output - Overcurrent	TEC 5004	This fault is reported when an overcurrent is detected on the Brake Controller Output. Indicates a short to ground.		1) Check the optional brake controller output circuit wiring and all of the output circuit connectors. 2) Test the optional brake controller output circuit wiring. 3) Test the optional brake controller (refer to the manufacturer documentation supplied with the brake controller). 4) Swap the primary TEC with a known good unit and reprogram.
C1314	Three-point Hitch Raise Output - Overcurrent	TEC 5004	This fault is reported when overcurrent detected on SP1 output. Indicates a short to ground.		1) Check the three-point hitch raise output circuit wiring and all of the output circuit connectors. 2) Test the three-point hitch raise output circuit wiring. 3) Test the hydraulic solenoid valve SP1 coil. 4) Swap the primary TEC with a known good unit and reprogram.

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
C1315	Three-point Hitch Raise Output - Open Circuit	TEC 5004	This fault is reported when an open is Circuit detected on SP1 output.	.	1) Check the three-point hitch raise output circuit wiring and all of the output circuit connectors. 2) Test the three-point hitch output circuit wiring. 3) Test the hydraulic solenoid valves coil. 4) Swap the primary TEC with a known good unit and reprogram.
C1324	Three-point Hitch Lower Output - Overcurrent	TEC 5004	This fault is reported when an overcurrent detected on the SP2 output. Indicates a short to ground.		1) Check the three-point hitch lower output circuit wiring and all of the output circuit connectors. 2) Test the three-point hitch lower output circuit wiring. 3) Test the hydraulic solenoid SP2 coil. 4) Swap the primary TEC with a known good unit and reprogram.
C1325	Three-point Hitch Lower Output - Open Circuit	TEC 5004	This fault is reported when an open circuit is detected on the SP2 output.		1) Check the three-point hitch lower output circuit wiring and all of the output circuit connectors. 2) Test the three-point hitch lower output circuit wiring. 3) Test the hydraulic solenoid SP2 coil. 4) Swap the primary TEC with a known good unit and reprogram.
C1450	Differential Lock Output - Fault Undetermined	TEC 5004	The fault type is undetermined due to the hardware restrictions. Cycling the output will allow the software to determine whether the fault is because of a short to ground, open circuit or short to battery.		1) Cycle the parking brake switch ON and OFF (key switch in the RUN position) to allow the software to determine the fault type

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
C1453	Differential Lock Output - Short to Battery	TEC 5004	This fault is reported when low current is detected on the differential lock output. Indicates a short to a 12V source.		1) Check the differential lock output circuit wiring and all of the output circuit connectors. 2) Test the differential lock output circuit wiring. 3) Test the hydraulic solenoid valve SV3 coil. 4) Swap the primary TEC with a known good unit and reprogram.
C1454	Differential Lock Output - Overcurrent	TEC 5004	This fault is reported when overcurrent is detected on the differential lock output. Indicates a short to ground.		1) Check the differential lock output circuit wiring and all of the output circuit connectors. 2) Test the differential lock output circuit wiring. 3) Test the hydraulic solenoid valve SV3 coil. 4) Swap the primary TEC with a known good unit and reprogram.
C1455	Differential Lock Output - Open Circuit	TEC 5004	This fault is reported when an open circuit is detected on the differential lock output.		1) Check the differential lock output circuit wiring and all of the output circuit connectors. 2) Test the differential lock output circuit wiring. 3) Test the hydraulic solenoid valve SV3 coil. 4) Swap the primary TEC with a known good unit and reprogram.

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
C14A3	Optional Solenoid Control Valve (SCV) - Short to Battery	TEC 5004	This fault is reported when low current is detected on the optional Solenoid Control Valve output. Indicates a short to a 12V source.		1) Check the optional SCV output circuit wiring and all of the output circuit connectors. 2) Test the optional SCV output circuit wiring. 3) Test the SCV relay. 4) Test all 4 of the hydraulic solenoid valve SCV coils. 5) Swap the primary TEC with a known good unit and reprogram.
C14A4	Optional Solenoid Control Valve (SCV) - Overcurrent	TEC 5004	This fault is reported when overcurrent is detected on the optional Solenoid Control Valve output. Indicates a short to ground.		1) Check the optional SCV output circuit wiring and all of the output circuit connectors. 2) Test the optional SCV output circuit wiring. 3) Test the SCV relay. 4) Test all 4 of the hydraulic solenoid valve SCV coils. 5) Swap the primary TEC with a known good unit and reprogram.
C14A5	Optional Solenoid Control Valve (SCV) - Open Circuit	TEC 5004	This fault is reported when an open Circuit is detected on the optional Solenoid Control Valve.		1) Check the optional SCV output circuit wiring and all of the output circuit connectors. 2) Test the optional SCV output circuit wiring. 3) Test the SCV relay. 4) Test all 4 of the hydraulic solenoid valve SCV coils. 5) Swap the primary TEC with a known good unit and reprogram.

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
C14B0	Range Hi Output - Fault Undetermined	TEC 5004	The fault type is undetermined due to the hardware restrictions. Cycling the output will allow the software to determine whether the fault is because of a short to battery, short to ground, or an open circuit.		1) Cycle the mode selector to Lowland back to HIGH to allow the software to determine the fault type
C14B3	Range Hi Output - Short to Battery	TEC 5004	This fault is reported when low current is detected on the range Hi output. Indicates a short to a 12V source.		1) Check the range Hi output circuit wiring and all of the output circuit connectors. 2) Test the range Hi output circuit wiring. 3) Test the hydraulic solenoid valve SV1 coil. 4) Swap the primary TEC with a known good unit and reprogram.
C14B4	Range Hi Output - Short to Ground/Overcurrent	TEC 5004	This fault is reported when an overcurrent is detected on the range Hi output. Indicates a short to ground.		1) Check the range Hi output circuit wiring and all of the output circuit connectors. 2) Test the range Hi output circuit wiring. 3) Test the hydraulic solenoid valve SV1 coil. 4) Swap the primary TEC with a known good unit and reprogram.
C14B5	Range Hi Output - Open Circuit	TEC 5004	This fault is reported when an open circuit is detected on the range Hi output.		1) Check the range Hi output circuit wiring and all of the output circuit connectors. 2) Test the range Hi output circuit wiring. 3) Test the hydraulic solenoid valve SV1 coil. 4) Swap the primary TEC with a known good unit and reprogram.

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
C14C4	PTO Output - Overcurrent	TEC 5004	This fault is reported when overcurrent is detected on the PTO output. Indicates a short to ground.		1) Check the PTO output wiring and all of the output circuit connectors. 2) Test the PTO output circuit wiring. 3) Test the hydraulic solenoid valve EH coil. 4) Swap the primary TEC with a known good unit and reprogram.
C14C5	PTO Output - Open Circuit	TEC 5004	This fault is reported when an open Circuit is detected on the PTO output.		1) Check the PTO output circuit wiring and all of the output circuit connectors. 2) Test the PTO output circuit wiring. 3) Swap the primary TEC with a known good unit and reprogram.
C1514	Front Hydraulic Pressure Sensor - Short to Ground	TEC 5004	This fault is reported when the front hydraulic pressure sensor is shorted to Ground (out of range low)	PTO is disabled and machine enters limp mode after the machine comes to a stop	1) Check front pressure sensor (L/H side of traction pump) wiring and connector. 2) Test the pressure sensor wiring. 3) Test the pressure sensor
C1515	Front Hydraulic Pressure Sensor - Open Circuit	TEC 5004	This fault is reported when the front hydraulic pressure sensor is open (out of range high)	PTO is disabled and machine enters limp mode after the machine comes to a stop	1) Check front pressure sensor (L/H side of traction pump) wiring and connector. 2) Test the pressure sensor wiring. 3) Test the pressure sensor.
C1524	Rear Hydraulic Pressure Sensor - Short to Ground	TEC 5004	This fault is reported when the rear hydraulic pressure sensor is shorted to Ground (out of range low)	PTO is disabled and machine enters limp mode after the machine comes to a stop	1) Check rear pressure sensor (R/H side of traction pump) wiring and connector. 2) Test the pressure sensor wiring. 3) Test the pressure sensor
C1525	Rear Hydraulic Pressure Sensor - Open Circuit	TEC 5004	This fault is reported when the rear hydraulic pressure sensor is open (out of range high)	PTO is disabled and machine enters limp mode after the machine comes to a stop	1) Check rear pressure sensor (R/H side of traction pump) wiring and connector. 2) Test the pressure sensor wiring. 3) Test the pressure sensor

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
C153C	3-Point Hitch Raise Stall	TEC 5004	This fault is reported when the 3-Point Raise output is enabled, but the 3-point does not report movement	3-Point Raise is disabled for paddle-controlled attachments	1) If 3-point hitch is moving: A. Make sure 3-point hitch position sensor is properly installed (mounting bracket is stationary and sensor shaft moves with lift arm pivot). B. Test the 3-point hitch position sensor. 2) If the 3-point hitch is not moving: A. Make sure the hitch assembly is not obstructed or overloaded. B. Service hydraulic cartridge valve SP1 and replace if necessary. C. Service hydraulic relief valve RV2 and replace if necessary
B1027	Cruise Control Speed Increase-Decrease Switch is Broken	TEC 5004	This fault is reported when the Cruise Control SPEED_INCREASE and Cruise Control SPEED_DECREASE inputs are active at the same time	Speed Increase and Speed Decrease will be disabled	1) Check the cruise control speed increase/decrease switch circuit wiring and all of the circuit connectors. 2) Test the cruise control speed increase/decrease switch. 3) Test the cruise control speed increase/decrease switch circuit wiring

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
B1107	Transmission Lever Switch Broken	TEC 5004	This fault is reported when both the TRANMISSION_FWD and TRANMISSION_REV inputs are active at the same time	Traction is disabled	1) Use the transmission lever and the InfoCenter to determine which transmission lever switch does not match with the lever input movement (TRACTION INPUTS-TRANSMISSION FWD and TRACTION INPUTS-TRANSMISSION REV). 2) Check the circuit wiring and all the circuit connectors for the unresponsive switch. 3) Test the unresponsive switch. 4) Test all unresponsive switch wiring
B1117	Optional InchMode Raise-Lower Switch Broken	TEC 5004	This fault is reported when the INCH_MODE_RAISE and INCH_MODE_LOWER inputs are active at the same time	InchMode traction control is disabled	1) Check the optional InchMode raise/lower switch circuit wiring and all the circuit connectors. 2) Test the optional InchMode raise/lower switch. 3) Test the optional InchMode raise/lower switch circuit wiring
B1127	Optional InchMode Fwd-Rev Switch Broken	TEC 5004	This fault is reported when the INCH_MODE_FWD and INCH_MODE_REV inputs are active at the same time	InchMode traction control is disabled	1) Check the optional InchMode forward/reverse switch circuit wiring and all the circuit connectors. 2) Test the optional InchMode forward/reverse switch. 3) Test the optional InchMode forward/reverse switch circuit wiring

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
B1137	Paddle Switch Broken	TEC 5004	This fault is reported when the THREE_POINT_RAISE and THREE_POINT_LOWER inputs are active at the same time	3-point hitch control is disabled	1) Use the paddle switch and InfoCenter to determine which paddle switch does not match paddle movement (3-POINT INPUTS – 3-POINT LOWER and 3-POINT INPUTS – 3-POINT RAISE). 2) Check the circuit wiring and all the circuit connectors for the unresponsive switch. 3) Test the unresponsive switch. 4) Test the unresponsive switch circuit wiring
B1154	Mode Selector - Short to Ground	TEC 5004	This fault is reported when a short to ground is detected on the Mode Selector circuit.	Default to low mode operation and disable PTO	1) Check the mode selector circuit wiring and all circuit connectors. 2) Test the mode selector circuit wiring. 3) Test the mode selector
B1155	Mode Selector - Open Circuit	TEC 5004	This fault is reported when an open circuit is detected on the Mode Selector circuit.	Default to low mode operation and disable PTO	1) Check the mode selector circuit wiring and all circuit connectors. 2) Test the mode selector circuit wiring. 3) Test the mode selector
B1164	3-Point Position Sensor - Short to Ground	TEC 5004	This fault is reported when a short to ground is detected on the 3-Point hitch position sensor circuit	Autonomous 3-point hitch control is disabled	1) Check the 3-point hitch position sensor circuit wiring and all circuit connectors. 2) Test the 3-point hitch position sensor circuit wiring. 3) Test the 3-point hitch position sensor

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
B1165	Three Point Position Sensor - Open Circuit	TEC 5004	This fault is reported when an open circuit is detected on the 3-Point hitch position sensor circuit	Autonomous 3-point hitch control is disabled	1) Check the 3-point hitch position sensor circuit wiring and all circuit connectors. 2) Test the 3-point hitch position sensor circuit wiring. 3) Test the 3-point hitch position sensor
U0100	CAN Bus Communication Fault – Engine/ECU	TEC 5004	This fault is reported when communication is lost with the engine controller (ECU)	All machine functions disabled	1) Check the power supply to the engine controller (ECU). A. Test fuse F-A2 (10A). B. Test ECU supply and ground circuit wiring. 2) Test CAN-bus resistance
U012A	CAN Bus Communication Fault - TDM	TDM 2002	This fault is reported when communication is lost with the TDM	TDM display blank, but machine functions may continue	1) Check power supply to TDM: A. Test fuse F-A4 (2A). B. Test T2: TDM supply and ground circuit wiring. 2) Test external CAN-bus termination resistor (terminator). 3) Test CAN-bus resistance
U012B	CAN Bus Communication Fault – Expansion Port (example: T3/InchMode option)	TEC 5004	This fault is reported when communication is lost with the expansion port controller		1) Check power supply to expansion port: A. Test fuse F-C2 (10A). B. Test expansion port supply and ground circuit wiring. 2) Test external CAN-bus termination resistor (terminator). 3) Test CAN-bus resistance

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
U0156	CAN Bus Communication Fault - InfoCenter	TEC 5004	This fault is reported when communication is lost with the InfoCenter	InfoCenter display may be blank but machine functions may continue	1) Check power supply to InfoCenter. A. Test fuse F-B3 (2A). B. Test InfoCenter supply and ground circuit wiring. 2) Test external CAN-bus termination resistor (terminator). 3) Test CAN-bus resistance
U1007	Controller Main Power Relay	TEC 5004	This fault is reported when a main power relay has failed.	All the VBATT channels are affected which likely means that the main power relay failed. This fault can also trip in the unlikelihood that all three 7.5A output fuses blow. CAN bus communication faults will also appear	1) Test fuse F-B2 (2A). 2) Test the functionality of the main power relay. 3) If relay tests ok, verify that the TEC is getting 12 Vdc from the relay. 4) Test T1: TEC output fuses F-A1, F-B1, F-C1, and F-D1 (all 7.5A)
U1022	TEC Fuse 2 Failure	TEC 5004	This fault is reported when a fuse is blown on outputs 1-4 of the TEC.		1) Check 7.5 Amp fuse protecting outputs 1 - 4.
U1023	TEC Fuse 3 Failure	TEC 5004	This fault is reported when a fuse is blown on outputs 5-8 on the TEC.		1) Check 7.5 Amp fuse protecting outputs 5 - 8.
U1024	TEC Fuse 4 Failure	TEC 5004	This fault is reported when a fuse is blown on outputs 9-12 on the TEC.		1) Check 7.5 Amp fuse protecting outputs 9 - 12.
U1025	TEC Fuse 5 Failure	TEC 5004	This fault is reported when a fuse is blown on outputs 13-16 on the TEC.		1) Check 7.5 Amp fuse protecting outputs 9 - 12.
U1117	Source Address Contention Fault	TEC 5004	This fault is reported when the TEC received a message from another controller on the CAN bus using the same source address.	Machine will be disabled	1) Reprogram the machine using Toro DIAG.

Fault ID	Fault Title	Controller	Fault Condition/ Technical Description	Additional Notes	Service Actions
U1308	Software Version Incompatibility - TDM	TDM 2002	This fault is reported when the TDM display firmware is incompatible.	Machine will be disabled	1) Use Toro DIAG to update machine firmware.
U1309	Software Version Incompatibility – Expansion port	TEC 5004	This fault is reported when the expansion port firmware is incompatible.	Machine will be disabled	1) Use Toro DIAG to update machine firmware.
U130A	Software Version Incompatibility - InfoCenter	TEC 5004	This fault is reported when the InfoCenter software is incompatible.	Machine will be disabled	1) Use Toro DIAG to update machine firmware.
U130F	Software Version Incompatibility - Unknown	TEC 5004	This fault is reported when the software version is unknown	Machine will be disabled	1) Use Toro DIAG to update machine firmware.
U1701	Board Internal Error - IPE	TEC 5004	This fault is reported when the primary TEC is not functioning correctly	Machine will be disabled	1) Swap the primary TEC with a known good unit and reprogram.