

D6i Notes
 1. At KEY ON position; all indicator lamps, cooler fan, fuel pump and engine Gov actuator and EGR will come on for 10 sec. Battery charge fail lamp will remain on after if engine not running.
 2. To check FPS command signal, with unit in CSM, move FPS and listen for the pitch dump valve to deactivate.

Yanmar Engine Info
 Engine Speeds - MCU controlled
 Low Idle - 1000 RPM
 High Idle - 1750 RPM
 High Speed - 2800 RPM

Electrical Harness P/N
 22318 ECU Side - Engine
 22792 MCU Side - Whiteman Side

WST Information
 Service Tool Application File for both hardware versions: 22708RevE

MCU P/N - 22706
 FW File for MCU 22706: 22707103
 Parameter File for MCU 22706
 HTX - 32584101
 STX - 32585101

MCU P/N 42072
 FW File for MCU 42072: 30441100
 Parameter File for MCU 42072
 HTX - 32790100
 STX - 32800100

MCU
 1. Do Not HOT PLUG disconnect battery power when making ECU connections.

Temp Sensor P/N 22746 - For monitoring hydro fluid temp. Allows MCU to determine if cooler fan should be ON or OFF and for CSM. SW version 102 and higher allow the hydraulic temp to be read on the WST down to 21 degrees F

Temp/Resistance Curve
 122f = 810 ohms
 176f = 283 ohms
 The temp sender is a neg coefficient type.

Relay Part Numbers
 Engine Main/Accumulator 32096
 Engine Starter/Preheat. 32094
 Cooler Fan/Lights. 12017

Cold Start Mode Notes
 The cold start temperatures are settable with the service tool. The factory defaults for HTX -STXD6i are:
 Engine temp off: 160 °F
 Hydraulic temp off: 130 °F
 Hydraulic temp on: 125 °F

Harness Part Number
 Stroke, LH, RH pitch cylinder sensors
 Harness 22681

Hydraulic Fan
 Factory Setting for Hyd Fan
 Fan Speed - 2200 RPM
 Fan ON - 140
 Fan OFF - 135

Foot Pedal Sensor - Sends command input signal to MCU to drive stroke valve/stroke cylinder.
 Requires Calibration. Preset to 20% +/-5

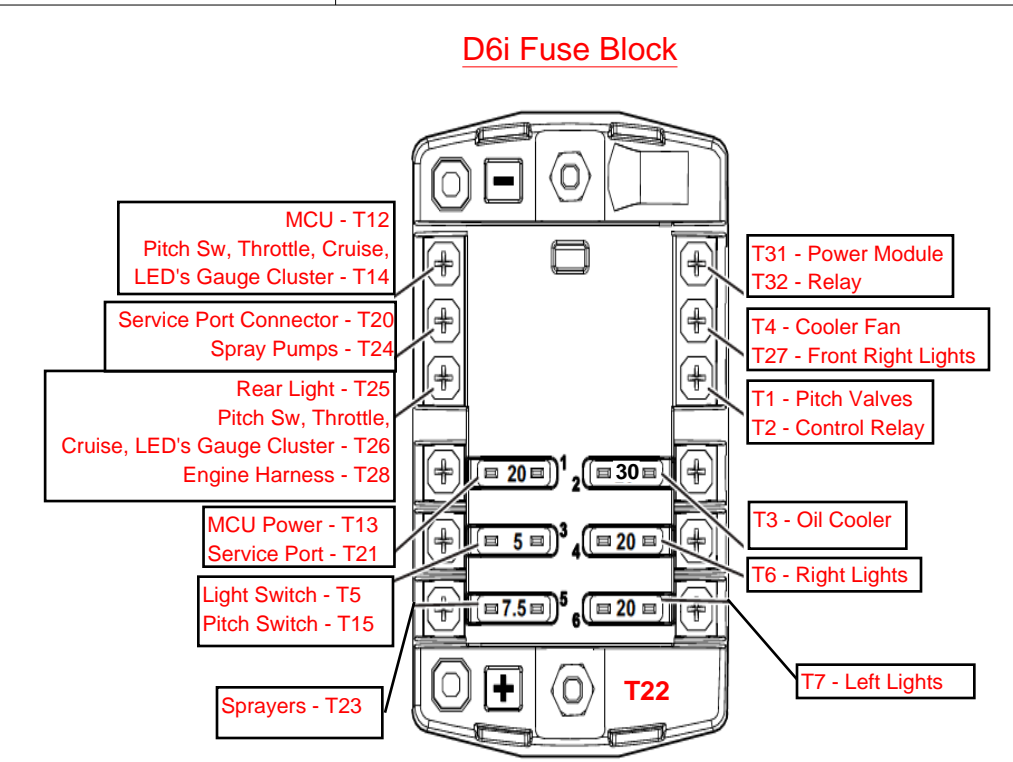
Stroke Valve Circuit
 Diagnostics Screen - View pump stroke valve in the field. This field is showing the current "feedback" on the stroke circuit in .1 Ma.

The measurements below should be expected in each case:
 1. Read around zero or even Neg with the seat switch open.
 2. Read around 1500 when seat switch closed but NO pump stroke command-off foot pedals.
 3. Read around 3000 or 3A when a pump stroke command is sent to the stroke valve.

If it reads ZERO all the time, check the coil resistance, seat switch and complete circuit from PIN 41 at MCU and thru the ground at fuse distribution block.

P16 - Front Harness Terminals
 1 - Front Left Light - 12vdc
 2 - GND Path for Front LH Lights
 3 - Front Right Light - 12vdc
 4 - GND Path for Front RH Lights
 5 - Sv Ref for L & R Pitch Sensor
 6 - Pitch Sensor GND
 7 - Feedback Signal LH Pitch
 8 - Feedback Signal RH Pitch

P17 - Rear Harness Terminals
 1 - Rear Left Light - 12vdc
 2 - Rear Right Light - 12vdc
 3 - LH Spray Pump Power - 12vdc
 4 - RH Spray Pump Power - 12vdc
 5 - GND Path for Rear Lights
 6 - GND Path for Spray Pumps
 7 - Not Used
 8 - Hydraulic Filter Condition Gauge

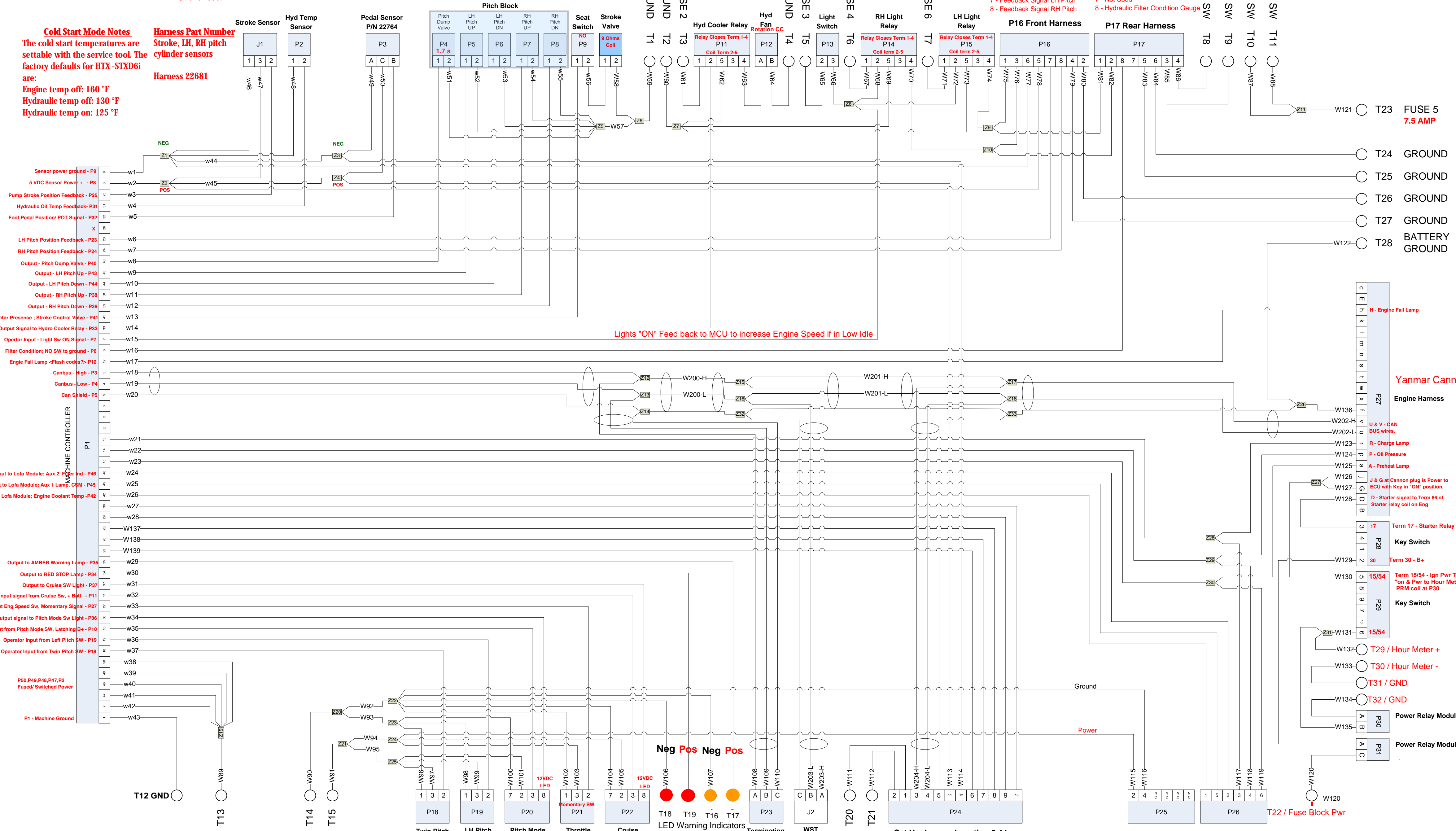


Fuse #	Amps	Functions Fused
1	20	MCU & Srv Port Connector
2	30	Oil Cooler Fan/Relay
3	5	Light & Pitch Switches
4	20	Right Lights
5	7.5	Retardant Sprayers
6	20	Left Lights

* Fuses are numbered on the base of fuse distribution block.

Amp measurement Tests

Amp Clamp on Pos at PRM
 Unit in CSM, Fan ON, Lights ON - 39.2 Amp
 Unit in CSM, Fan ON - 13.2 Amp
 Unit in CSM, Lights ON - 30 Amp
 Unit in CSM Only - 3.5 Amps
 CSM Off, unit in low idle - 2.1 Amps
 Low Idle, FAN only - Starting amp 35, running 11.6
 Low Idle, Lights only - Starting amp 48, running 29.1



RED Fault Lamp Condition:
 1. Fault in Foot pedal Sensor
 2. Red Stop Lamp signal detected via CAN-Bus from engine
 Fault Indicator Lamps are direct output from MCU

AMBER WARNING Lamp Condition:
 1. Amber warning detected via CAN-Bus from engine; Ex. Low Oil Pressure
 2. Malfunction Indicator Lamp via CAN-Bus from engine.
 3. Protect Lamp signal detected via CAN-Bus from engine.
 4. With key on an Amber lamp will show fault if the hydraulic temp sensor does not read a valid temp in 30 seconds.
 5. Fault detected in Left Pitch position sensor.
 6. Fault detected in Right Pitch position sensor.
 7. Fault detected in Stroke Position sensor.

Pitch Switches - Momentary - 3 Position, Center Off switch

DBL Pole SW - Panning Mode - Pitch Mode must be in Smart Pitch position
 Hold Twin & Left down for 10 seconds to Activate.

Smart Pitch Lamp Logic
 1. Lamp ON. - Indicates SYNC'd
 2. Lamp Blinks Fast - indicates Sync in process.
 3. Lamp On. 9 sec Off. 1 sec - Indicated in Panning Mode.
 4. Lamp Off - Manual Mode

Note: Ensure Pitch Mode Switch is in Manual position during Calibration.

Throttle SW - Operator Must Be Presence to increase engine speed
 3 position SW, Center Off.

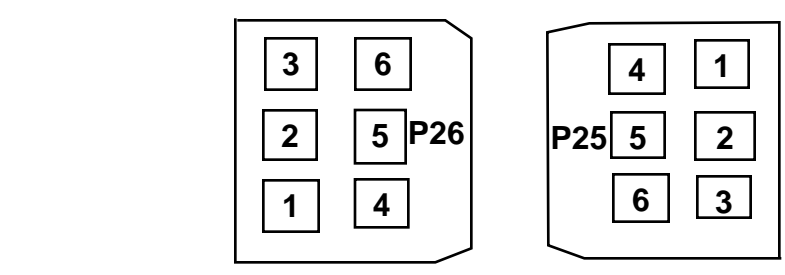
Cruise SW - is turned off by pressing the foot pedal or loosing operator presence.

WST Tool - Service Tool Kit - 32061

GROUND T20
FUSE 1 T21
20 AMP

Set Up Jumper Location 6-11

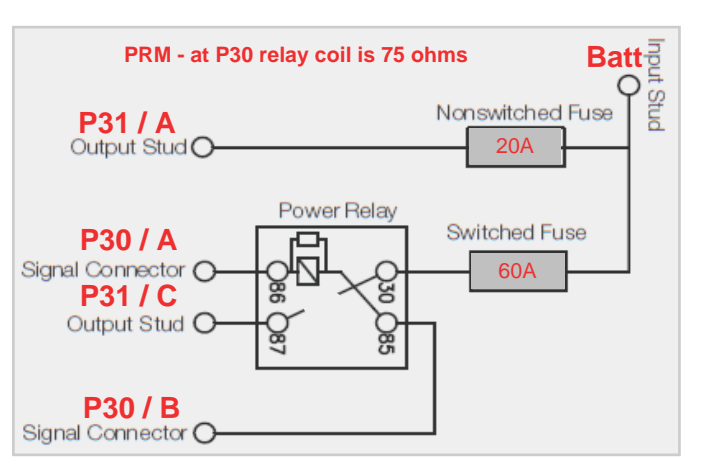
MC-6LC (View From Back)



- Coolant Temp Switch (IN2) <1>
- Aux 2 Light (IN4) <2>
- D+ Alternator (GEN) <3>
- Oil Pressure Switch (IN1) <4>
- Aux 1 Light (IN3) <5>
- Preheat Light (IN5) <6>
- <1> Not Used
- <15> 12VDC
- <3> Not Used
- <31> Ground
- <5> Not Used
- <6> Not Used

Key Switch Electrical Diagram

POS.	P	0	I	II	12 V MAX
30-58					8 A
30-15/54					35 A
30-19					70 A
30-17					70 A
30-50c					70 A



Power Module Relay - P/N 22724

PRM Signal P30
 A - Ground for PRM
 B - B+ from key switch when key in "ON" position. This will switch output "C" on or off.

PRM Output P31
 A- Unswitched power to Term 30 on Key switch, 20 amp fuse protected.
 C - Switched output to main Fuse block. 60 amp fuse protected.
 Fuses located on the PRM under black cap.

Main & Actuator Relay
 Ohms 3-6 = 328
 2 - 4 = NC
 2 - 1 = NO
 2 = common
 P/N 32096

Main Relay - Receives GND from ECU to close and provides power to the ECU, rack Act & EGR Valve.

Rack Actuator - Receives GND from ECU to close.

Both **MUST BE INSTALLED** for the engine to operate.

Sub Relay is not used, is not installed.

Cannon Plug

J & G are switched PWR from the key switch to the ECU.

J - PWR to the ALT.

G - Pwr's fuel pump, pwr to Act coil, SW pwr to ECM at 4G term.

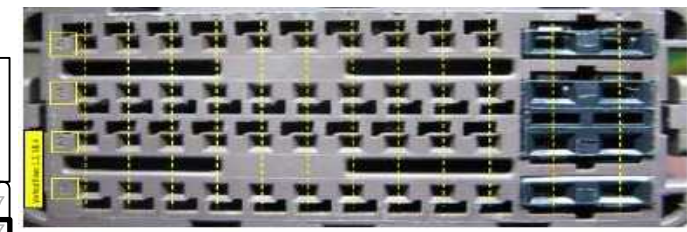
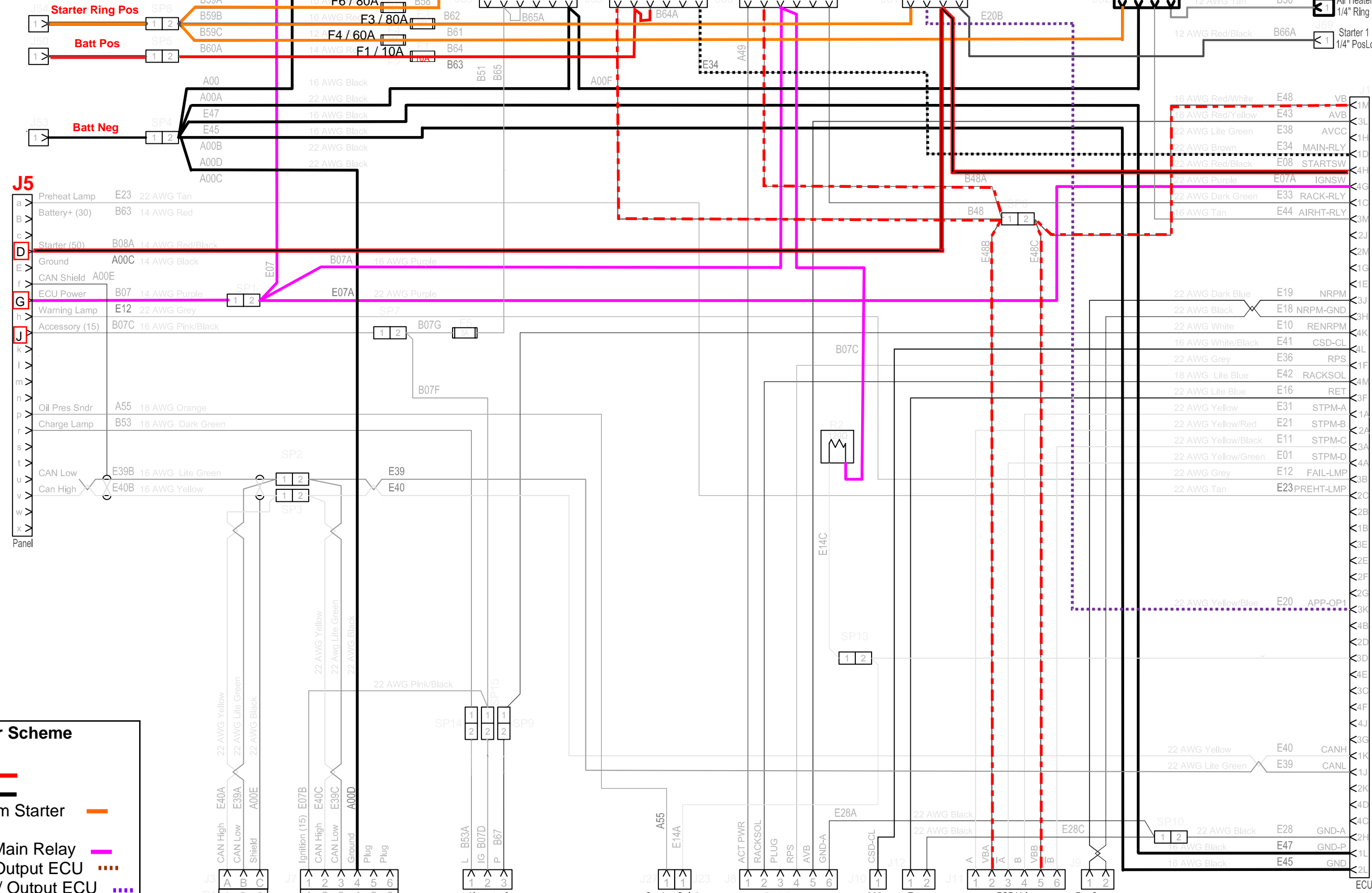
D - Starter signal from key SW

Term used in the J5 connector
 A,D,H,J,G,P,R,U & V

Wire Color Scheme

- Battery Positive —
- Battery Negative —
- Supply Voltage From Starter —
- Starter Signal —
- ECU Supply Pwr / Main Relay —
- Main Relay GND / Output ECU - - - -
- Starter Relay GND / Output ECU - - - -
- Output Pwr From Main Relay - - - -

Starter/Preheat Relay
 P/N 32094
 Term 85-86 = 80 ohms
 Starter Relay - Receives GND at Term 85 from the ECU
 Preheat Relay - Receives GND at term 86 from ECM



Yanmar ECU

- Input Power Supply
- Output Sensor Supply
- Output Main Relay / GND
- Start Signal
- Input Key Switch (Wake Up)
- Output Rack Relay / GND
- Output Air Heater / GND
- Input Speed Sensor
- Input Speed Sensor
- Input Backup Speed Sensor
- Output CSD Solenoid
- Input /Rack Position Sensor
- Output Rack Actuator
- Input Temp Sensor
- Output Stepping Motor A
- Output Stepping Motor B
- Output Stepping Motor C
- Output Stepping Motor D
- Output Trouble Lamp
- Output Preheat Lamp
- Output Start Relay / GND
- Input Oil Sender
- Canbus High
- Canbus Low
- Output Sensor GND
- Input GND
- Input Supply GND

120 Ohm

L(D+) - GND for Charge Lamp
 IG - Ignition Pwr to Alt
 P - Pulse signal

CSD - Cold Start Device
 ECU controlled, opens when coolant temp is 41 degrees