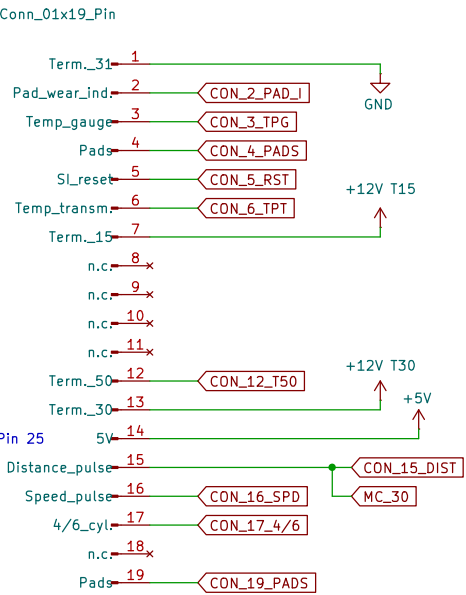


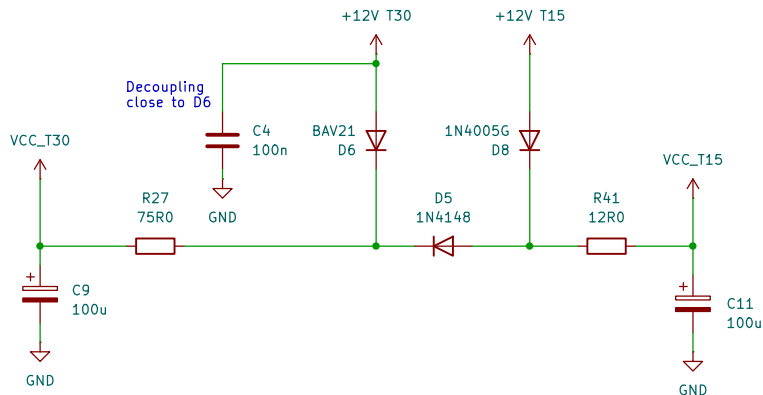
Main Connector (19 Pin)

From Conn. I (blue) Pin 20 – Term. 31
To Pad Wear Indicator Bulb (h)
To Temperature Gauge
From Conn. I (blue) Pin 21
From Conn. I (blue) Pin 22
From Conn. I (blue) Pin 26
From Conn. II (white) Pin 6 – Term. 15



For routing and connections on the cluster see images on bottom of the page

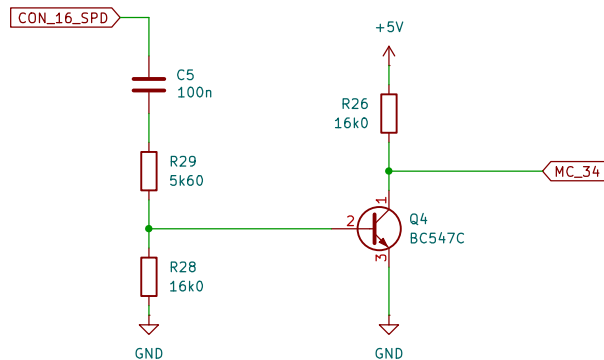
12V Power Supply



TODD: Check if +5V supplied from Tachometer also with T30 or only T15

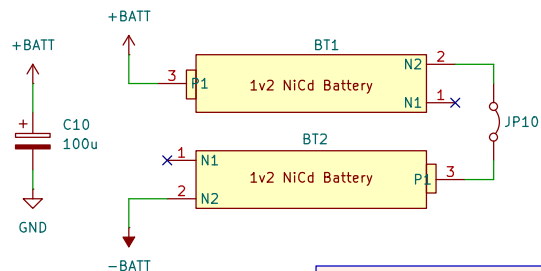
Terminal 30 (always hot) and Terminal 15 (hot with ignition) are separated. T30 powers the comparators even without T15. T15 supplies the service indicators and the relay.

Engine Speed Pulse Interfacing



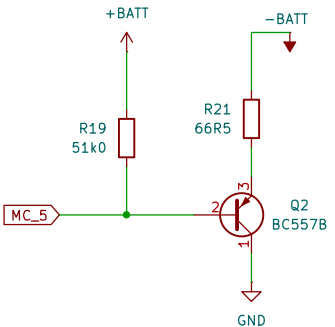
Pin MC_34 is pulled low through +12V pulse from Terminal 1 (Ignition Coil) that switches transistor T4

Batteries



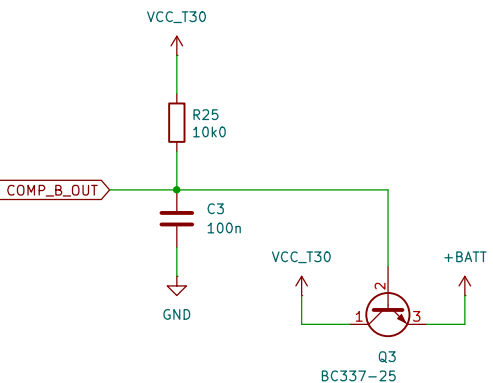
Jumper to prevent discharging of batteries while board in storage -> connect before installation

Switched -BATT to GND Connection

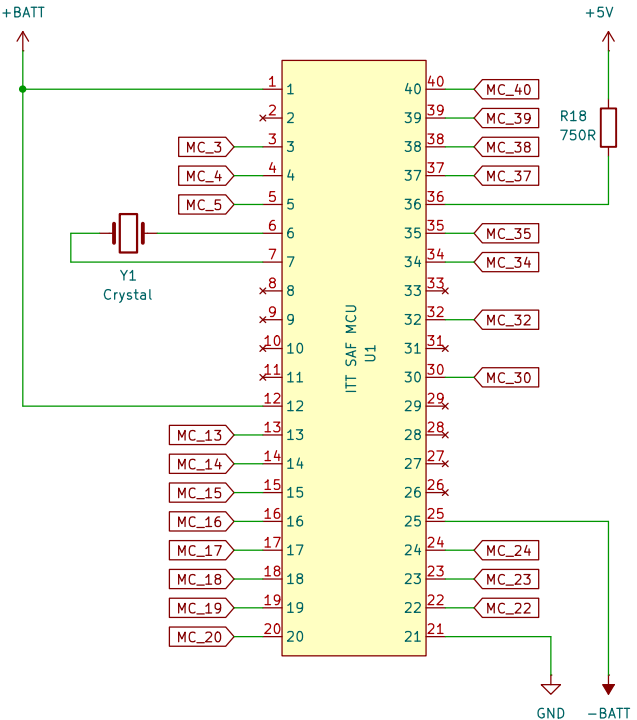


BC557B is a PNP: OFF when base is high through +BATT Pullup, ON when pulled low through MC_5

Switched +BATT to VCC_T30 Connection



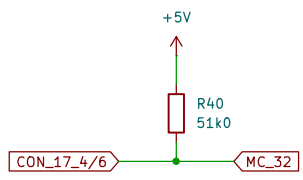
Microcontroller



Impossible to find datasheet. 5V Logic, DIP40 Package

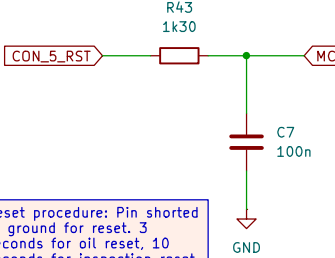
TODD: Measure crystal frequency (unmarked)

Engine Coding Interface



4 cylinder: coding plug shorts pin to ground
6 cylinder: pulled high through R40 pullup

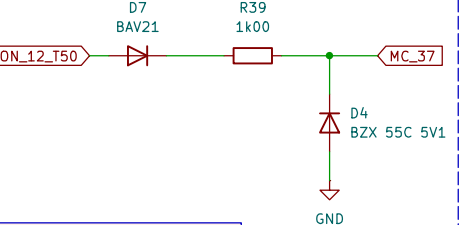
SI Reset Interfacing



Reset procedure: Pin shorted to ground for reset. 3 seconds for oil reset, 10 seconds for inspection reset.

Unclear if internal pullup or external on the cluster PCB

T50 Interfacing



T50 is HIGH (+12V) with key in START position

BMW_E30_VFL_SI_Board_Instrument_Cluster

Cluster Wiring

Date: BMW_E30_VFL_SI_Board_Instrument_Cluster.kicad_sch

BMW_E30_VFL_SI_Board_Comparator_Circuit

LM2901 Comparator Circuit

BMW_E30_VFL_SI_Board_Pad_Wear_Indicator

Pad Wear Indicator

BMW_E30_VFL_SI_Board_Indicator_Lights

Indicator Lights

Sheet: /
File: BMW E30 VFL SI Board V2.kicad_sch

Title: BMW E30 Pre-Facelift SI Board

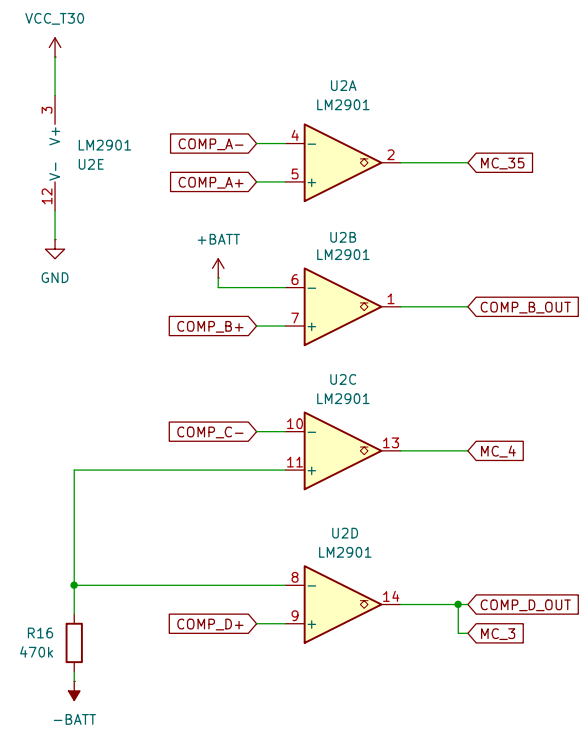
Size: A3 Date: 2024-06-15

KiCad E.D.A. 8.0.1

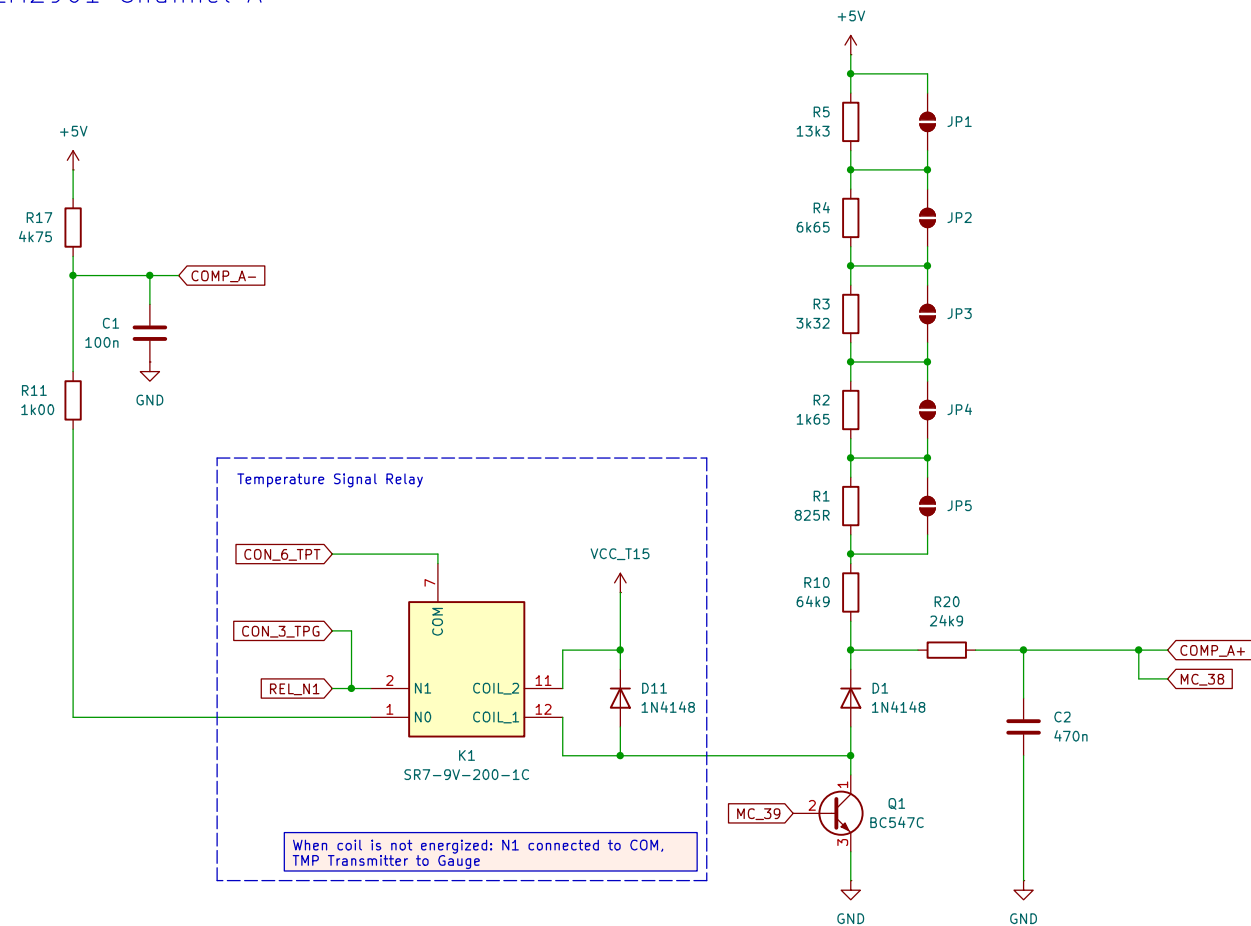
Rev: 2

Id: 1/5

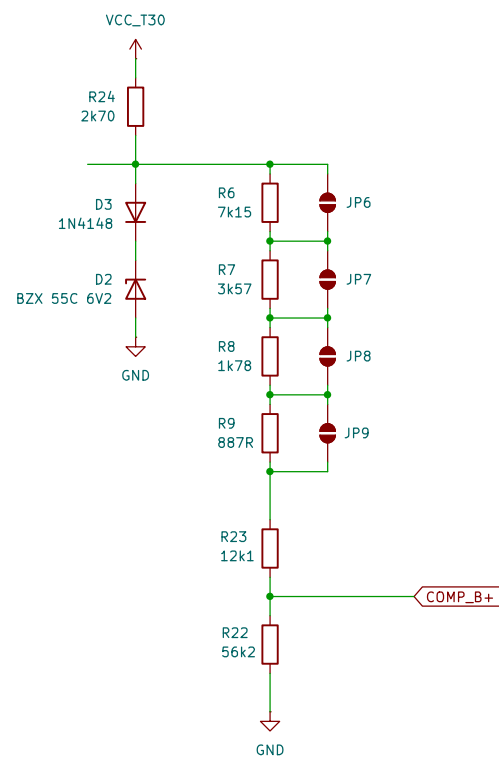
LM2901 Quad Channel Comparator



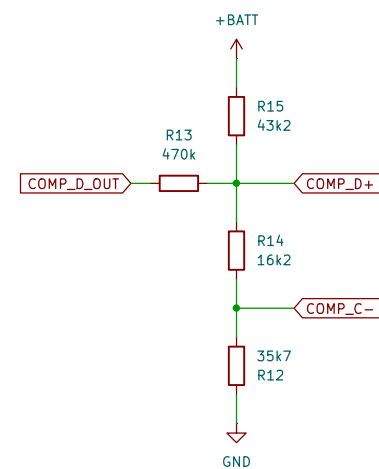
LM2901 Channel A



LM2901 Channel B



LM2901 Channels C and D



BMW_E30_VFL_SI_Board_Comparator_Circuit

Sheet: /BMW_E30_VFL_SI_Board_Comparator_Circuit/
File: BMW_E30_VFL_SI_Board_Comparator_Circuit.kicad_sch

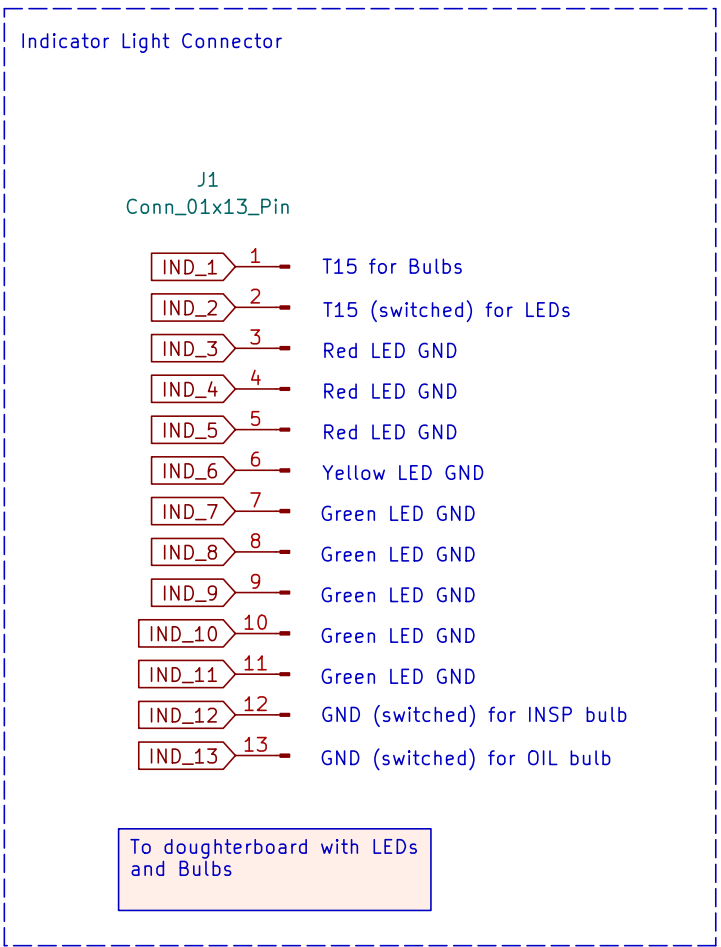
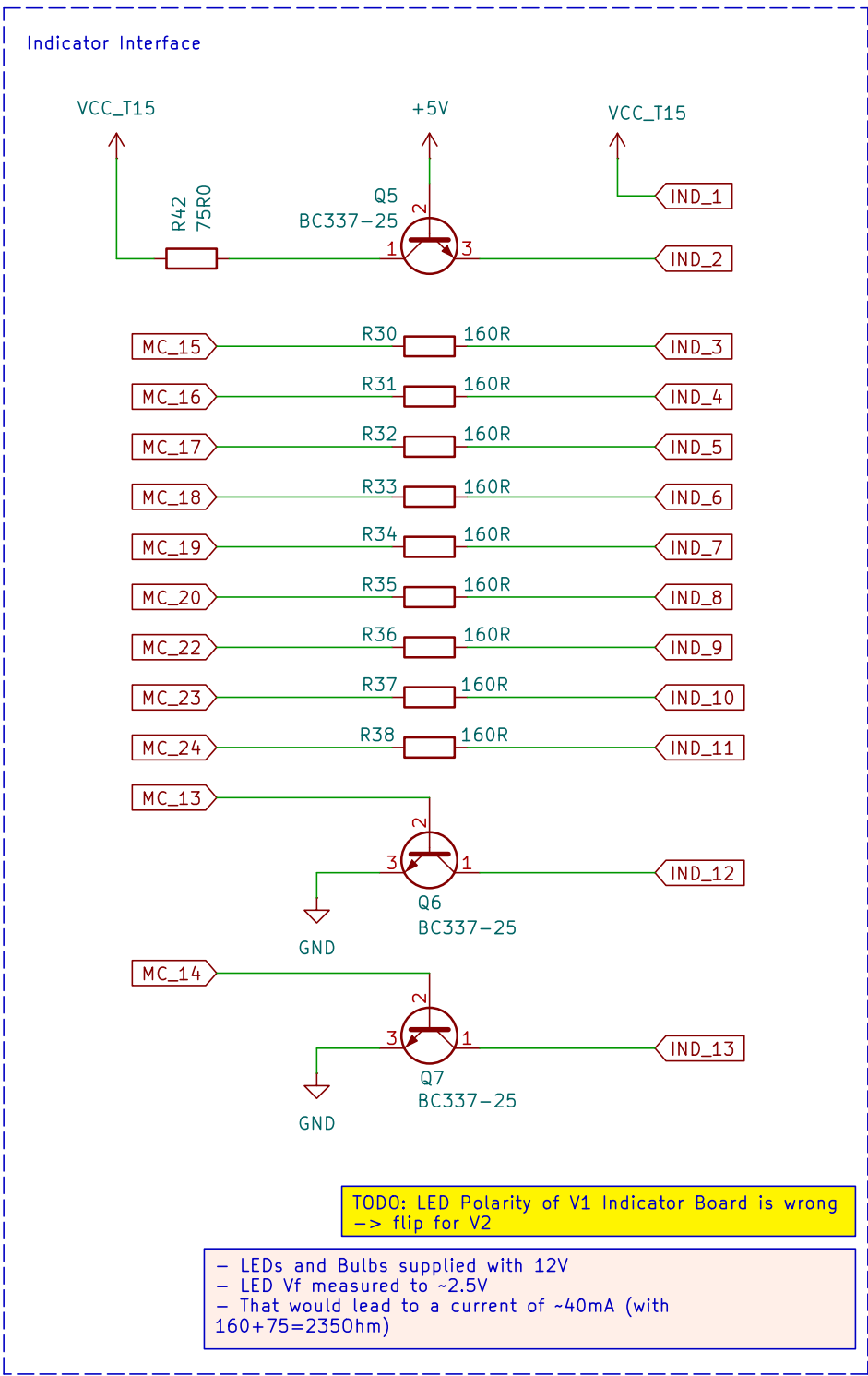
Title: BMW E30 Pre-Facelift SI Board

Size: A3	Date: 2024-06-15
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Rev: 2

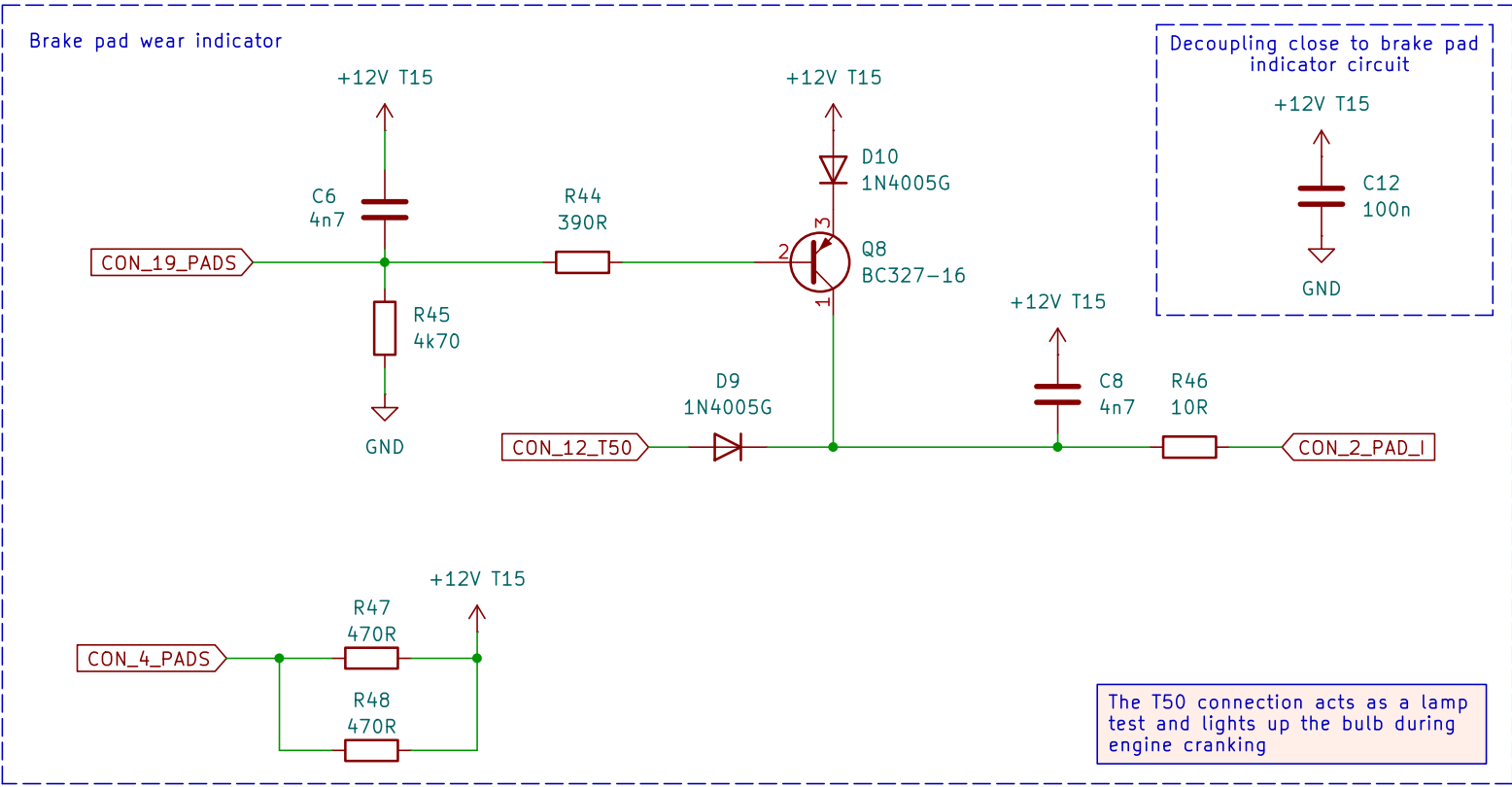
Size: A3	
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Id: 1/5



BMW_E30_VFL_SI_Board_Indicator_Lights

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Title: BMW E30 Pre-Facelift SI Board		
Size: A4	Date: 2024-06-15	Rev: 2
KiCad E.D.A. 8.0.1		Id: 1/5



BMW_E30_VFL_SI_Board_Pad_Wear_Indicator

Sheet: /BMW_E30_VFL_SI_Board_Pad_Wear_Indicator/
File: BMW_E30_VFL_SI_Board_Pad_Wear_Indicator.kicad_sch

Title: BMW E30 Pre-Facelift SI Board

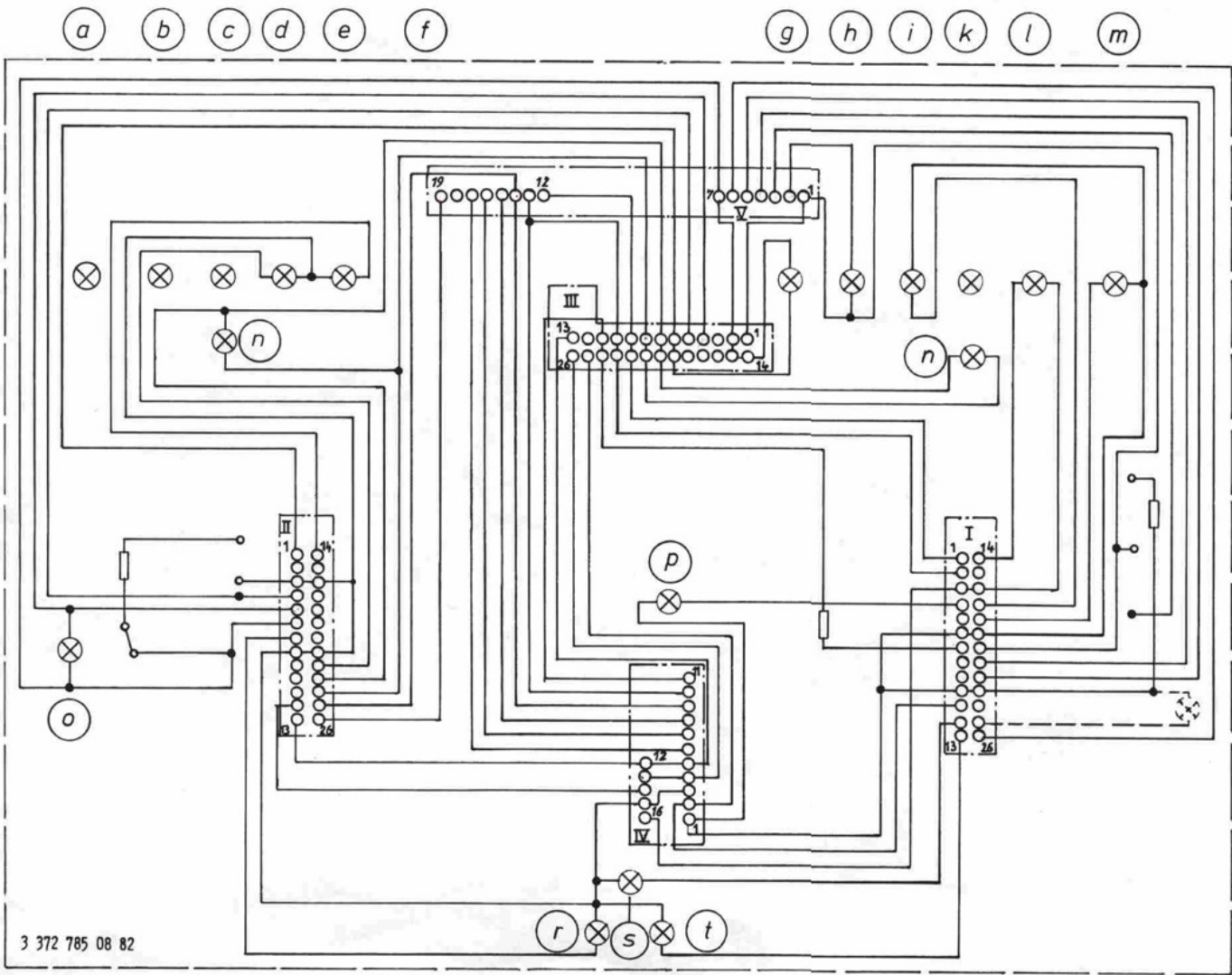
Size: A4

Date: 2024-06-15

Rev: 2

KiCad E.D.A. 8.0.1

Id: 1/5



Erläuterung zum Schaltplan Instrumenten-Kombination
– LL und RL – E 30 alle Modelle

Stiftleiste blau (I)					Stiftleiste weiß (II)				
Steckplatz	Benennung	Signal	Ausgang	Eingang	Steckplatz	Benennung	Signal	Ausgang	Eingang
1	Kl. 50	+12 V		x	1	Handbremse	Masse		x
2	Kl. 30	+12 V		x	2	frei			
3	Kl. 61	+12 V			3	Kl. 31	Masse		
4	Zentr. Kontrolle	(Frequenz)		x	4	Tank-Geber	$R(\Omega) = 3...72(\Omega)$		x
5	frei				5	Tank-Warn	$R(\Omega) =$		x
6	Kl. 15	+12 V			6	Kl. 15	+12 V		x
7	Kl. 1	+12 V		x	7	Blinker links	+12 V		x
8	frei				8	Kl. 31	Masse		
9	frei				9	frei			
10	Kl. 15	+12 V			10	frei			
11	Kl. 11 (Einspritzsignal)	+12 V (Frequenz)		x	11	frei			
12	Kl. 56a (Fernlicht)	+12 V		x	12	Kl. 31b	(Frequenz)		x
13	Blinker rechts	+12 V		x	13	Kl. R	+12 V		x
14	Kl. 15 (Ladekontrolle)	+12 V		x	14	Nebelschluß	+12 V		x
15	frei				15	frei			
16	Kl. 61 (Ladekontrolle)	+12 V		x	16	Kl. 31	Masse		x
17	Bremse	Masse		x	17	frei			
18	Öldruck	Masse		x	18	frei			
19	Kl. 15	+12 V			19	frei			
20	Kl. 31	Masse		x	20	frei			
21	Bremsbelag	Masse		x	21	Kl. 31	Masse		
22	Reset SI (Diagnose)	+5 V		x	22	Nebel vorn	+12 V		x
23	Kl. 15	+12 V		x	23	Kl. 58k	+12 V		x
24	frei				24	Kl. 31g	geregelt		x
25	Temp. Warn	Masse			25	5V Ausgang	5V		x
26	Temp. Geber	$R(\Omega) = 18...287(\Omega)$		x	26	Bremsbelag	Masse		x

a Diesel vorglühen
b Diesel Start
c frei
d Nebelscheinwerfer
e Nebelschlußleuchte
f Anhänger Blinker
g Handbremse
h Bremsbelagverschleißanzeige
i Bremskontrolle

k Antiblockiersystem
l Ladekontrolle
m Öldruck
n Instrumentenbeleuchtung
o Tankwarnleuchte
p Zentrale Kontrollleuchte
r Blinker links
s Fernlicht
t Blinker rechts

Stiftleiste gelb (III)					Stiftleiste (IV) DZM, EC, Uhr, E-Tacho		Stiftleiste (V) Service-Intervall	
Steckplatz	Benennung	Signal	Ausgang	Eingang	Steckplatz	Benennung	Steckplatz	Benennung
1	Kl. 31	Masse	x		1	Kl. 15	1	Kl. 31
2	Kl. 15	+12 V	x		2	Kl. 11	2	Bremsbelagverschl.
3	frei				3	Kl. 31	3	Temp.-Anzeige
4	Tank-Warn	$R(\Omega) =$	x		4	Analogsig.-Tacho	4	Bremsbelag
5	Tank-Geber	$R(\Omega) = 3...72(\Omega)$	x		5	Kl. R	5	SI-Reset
6	Handbremse	Masse			6	4/6 Zyl.	6	Temperaturgeber
7	Kl. 58k	+12 V	x		7	DZM Impuls	7	Kl. 15
8	Kl. 31g	geregelt	x		8	Wegimpuls	8	
9	Kl. 50	+12 V	x		9	5 V	9	
10	Kl. 30	+12 V	x		10	Kl. 30	10	
11	Kl. 1	+12 V	x		11	Kl. 1	11	
12	frei				12	Kl. 61	12	Kl. 50
13	Kl. R	+12 V	x		13	Kl. 31	13	Kl. 30
14	Kl. 15	+12 V	x		14	Kl. 31b	14	5 V
15	Kl. 15	+12 V	x		15	Analogsignal Tacho	15	Wegimpuls
16	frei				16	Kl. R	16	DZM Impuls
17	frei						17	4/6 Zyl.
18	frei						18	frei
19	Handbremse	Masse					19	Bremsbelag
20	Kl. 58k	+12 V	x					
21	Kl. 31g	geregelt	x					
22	Kl. 50	+12 V	x					
23	Kl. 30	+12 V	x					
24	Kl. 1	+12 V	x					
25	Kl. 11	+12 V (Frequenz)	x					
26	Analogausgang Tachometer	Frequenz	x					

DZM = Drehzahlmesser EC = Economy Control E-Tacho = electron. Tacho Kl. = Klemme SI = Service-Intervall

Cluster Schematic and Pin Assignment

Sheet: /BMW_E30_VFL_SI_Board_Instrument_Cluster/
File: BMW_E30_VFL_SI_Board_Instrument_Cluster.kicad_sch

Title: BMW E30 Pre-Facelift SI Board

Size: A3 Date: 2024-06-15 Rev: 2
KiCad E.D.A. 8.0.1 Id: 1/5