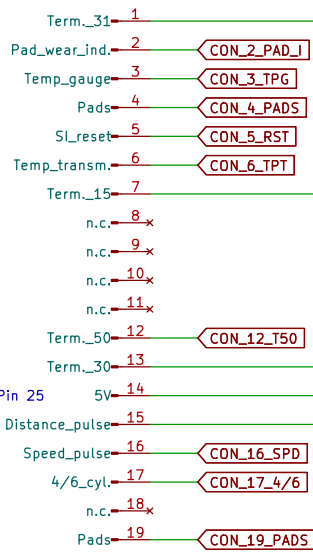


## Main Connector (19 Pin)

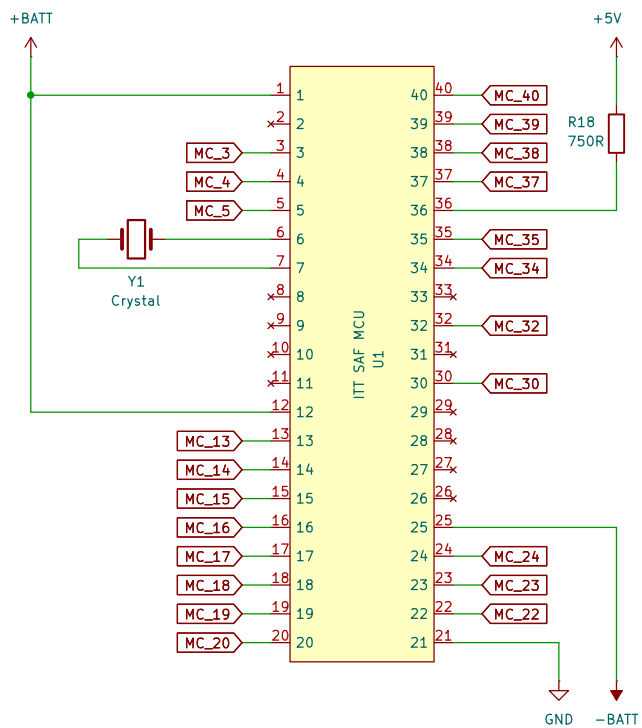
From Conn. I (blue) Pin 20 – Term. 31  
To Pad Wear Indicator Bulb (h)  
To Temperature Gauge  
From Conn. I (blue) Pin 21  
From Conn. I (blue) Pin 22  
From Conn. I (blue) Pin 26  
From Conn. II (white) Pin 6 – Term. 15

J2 Conn\_01x19\_Pin



For routing and connections on the cluster see "Cluster Wiring" page

## Microcontroller



Impossible to find datasheet. 5V Logic, DIP40 Package

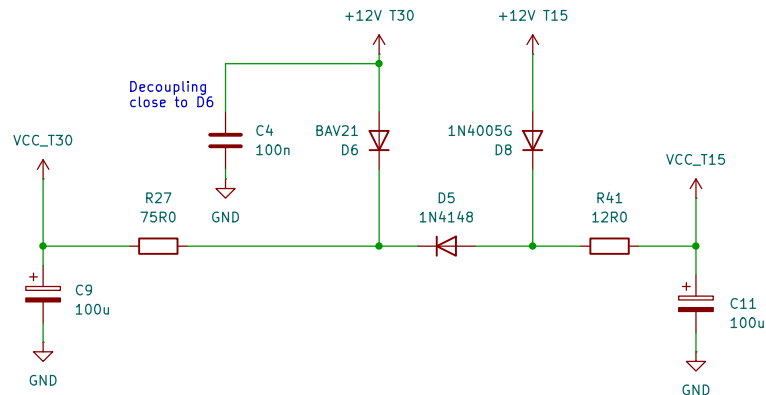
Crystal frequency: 60 Hz

BMW\_E30\_VFL\_SI\_Board\_Instrument\_Cluster

## Cluster Wiring

File: BMW\_E30\_VFL\_SI\_Board\_Instrument\_Cluster.kicad\_sch

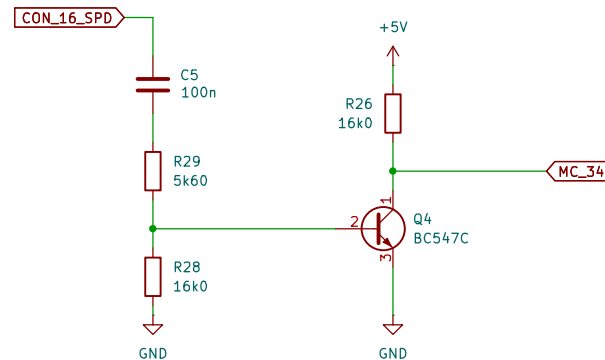
## 12V Power Supply



+5V supply is powered by T15 and is switched with the ignition.

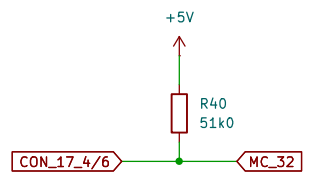
Terminal 30 (always hot) and Terminal 15 (hot with ignition) are separated. T30 powers the comparators even without T15. T15 supplies the service indicators and the relay.

## Engine Speed Pulse Interfacing



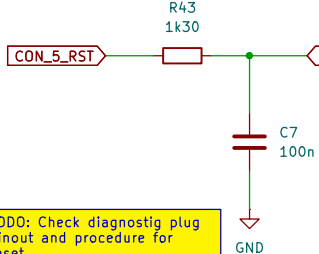
Pin MC\_34 is pulled low through +12V pulse from Terminal 1 (Ignition Coil) that switches transistor Q4

## Engine Coding Interface



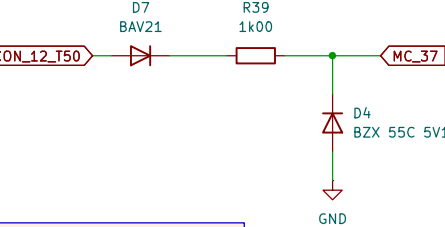
6 cylinder pulls high, 4 cylinder pulls low

## SI Reset Interfacing



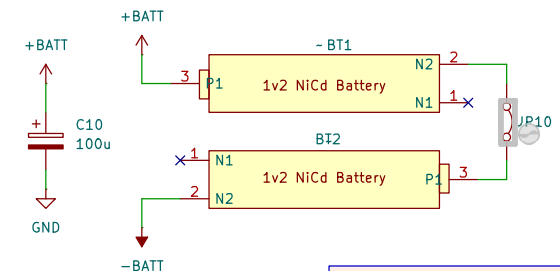
TODO: Check diagnostig plug pinout and procedure for reset

## T50 Interfacing



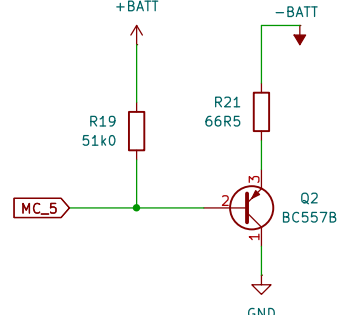
T50 is HIGH (+12V) with key in START position

## Batteries



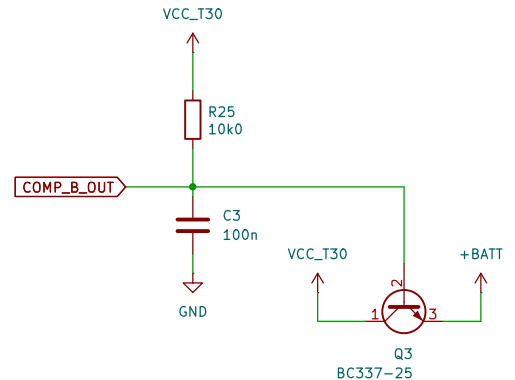
Jumper to prevent discharging of batteries while board in storage -> connect before installation

## 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



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

Revision 2.1 made by Reagan Ansel

Sheet: /  
File: BMW E30 VFL SI Board V2.kicad\_sch

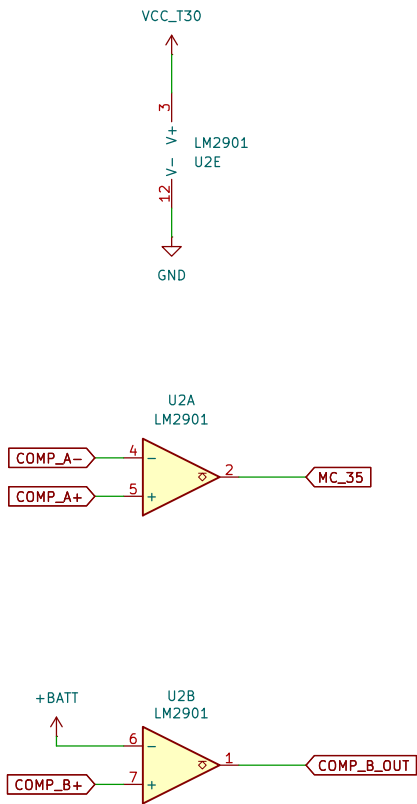
**Title: BMW E30 Pre-Facelift SI Board**

Size: A3  
KiCad E.D.A. 9.0.3

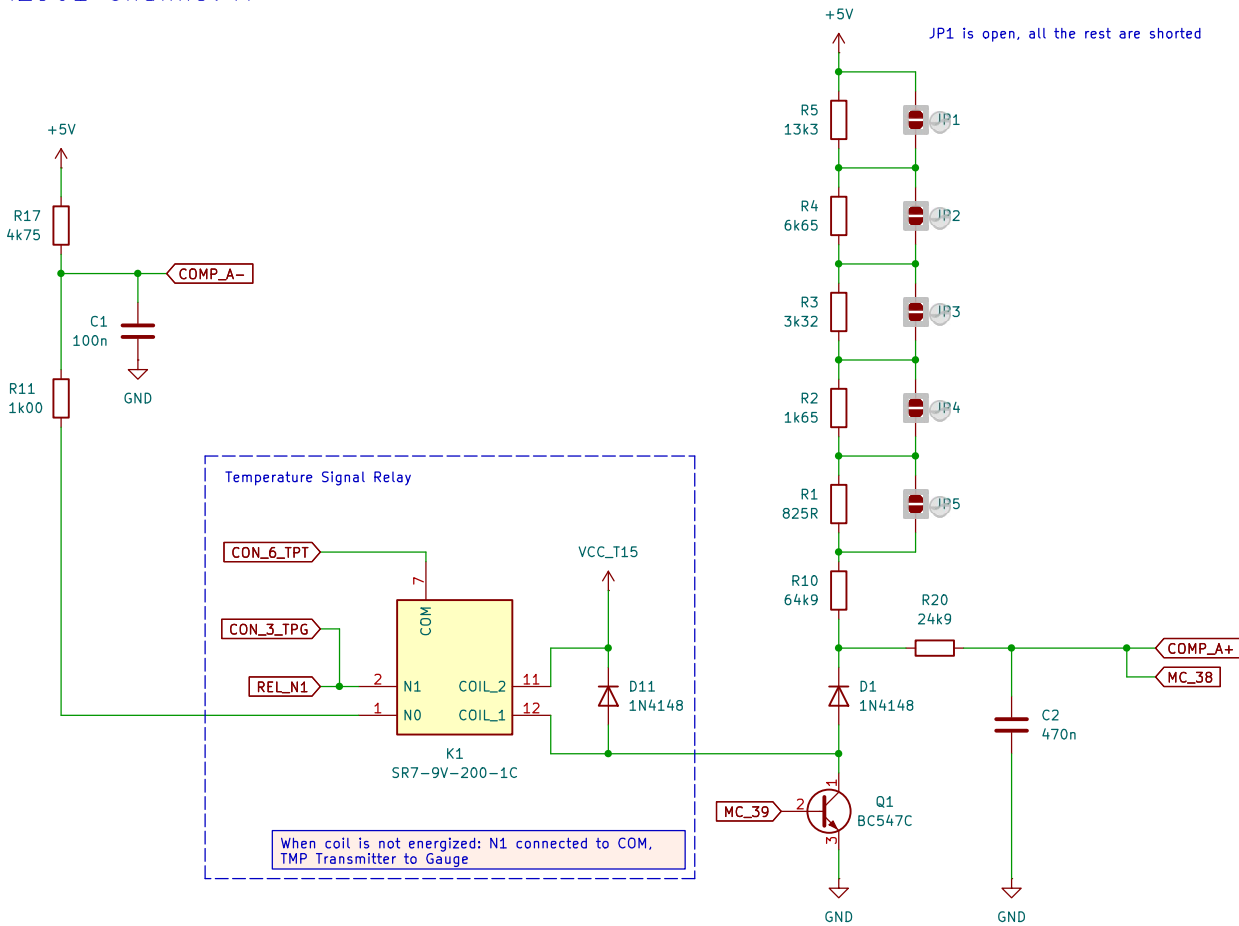
Date: 2025-07-23

Rev: 2.1  
Id: 1/5

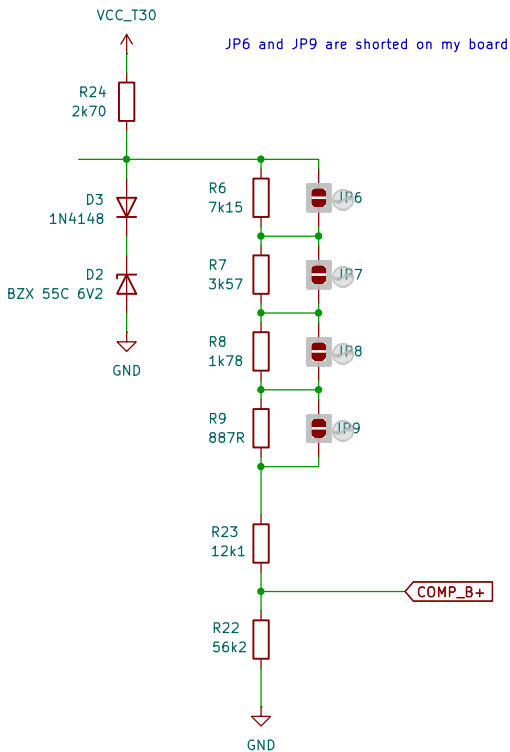
LM2901 Channels A and B



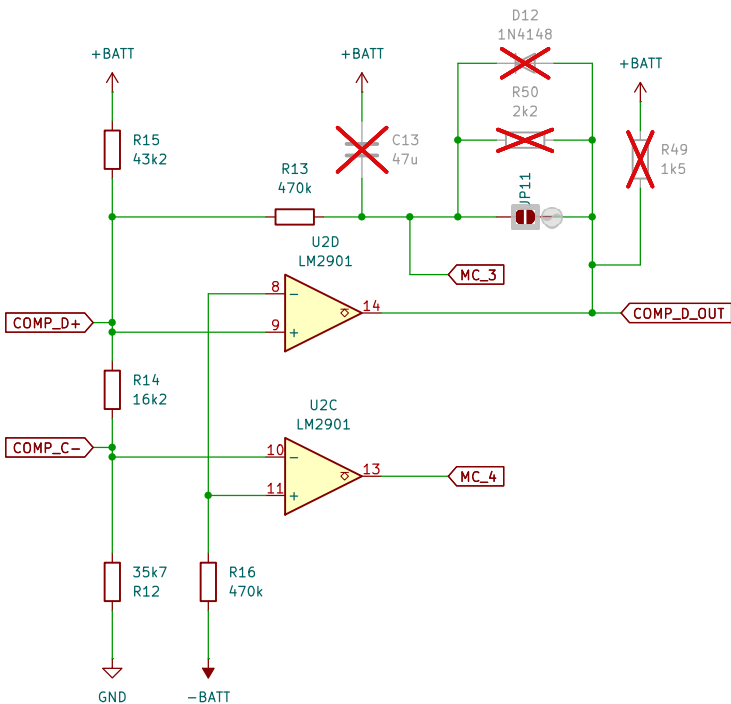
LM2901 Channel A



LM2901 Channel B



LM2901 Channels C and D



NOTE: Two US spec versions of this board had R49, R50, D12, and C13 provisions populated, and JP11 open. They did not have their own footprints, but rather were placed as pictured below.



These provisions were likely added to improve the charging circuit by providing a more stable voltage input to the SAF1093 chip. By doing this it can more accurately and precisely monitor the charge status of the batteries. This signal is likely used to control Q2 on page 1 to connect the negative battery terminal to ground.

Comparator D appears to be used for telling when the batteries have reached a sufficiently charged voltage. It changes its output state to high at this point (~1.15 V on each battery). It is probable that this triggers the SAF chip to turn off Q2 to disable charging.

Comparator C pulls low when the batteries reach a nominal voltage of ~1.55 V each. This may be an overvoltage protection measure for the charging circuit.

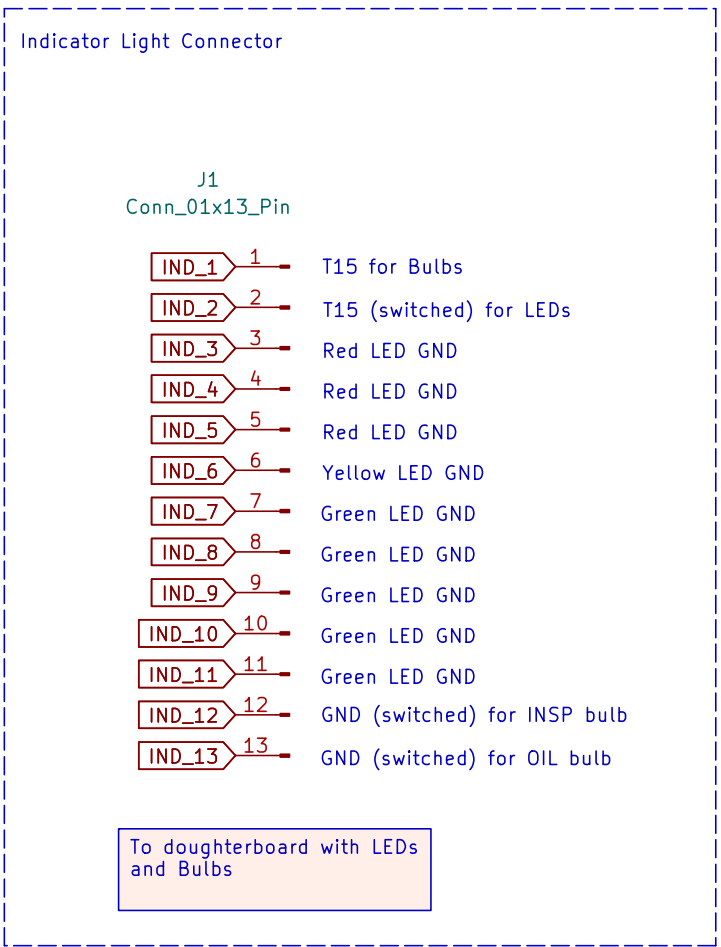
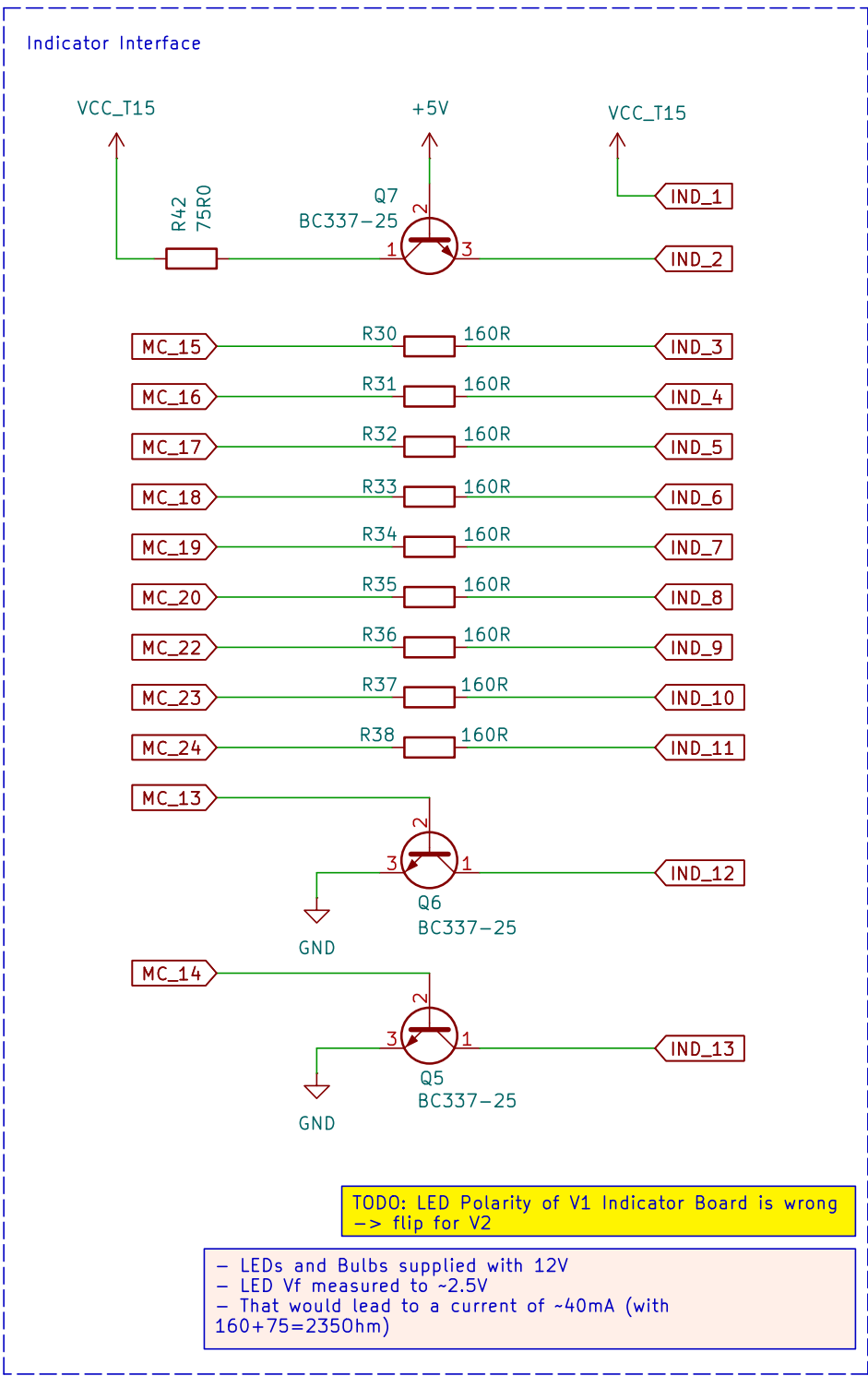
BMW\_E30\_VFL\_SI\_Board\_Comparator\_Circuit  
Revision 2.1 made by Reagan Ansel

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: 2025-08-03  
KiCad E.D.A. 9.0.3

Rev: 2.1  
Id: 2/5



## BMW\_E30\_VFL\_SI\_Board\_Indicator\_Lights

Revision 2.1 made by Reagan Ansel

Sheet: /BMW\_E30\_VFL\_SI\_Board\_Indicator\_Lights/  
File: BMW\_E30\_VFL\_SI\_Board\_Indicator\_Lights.kicad\_sch

**Title: BMW E30 Pre-Facelift SI Board**

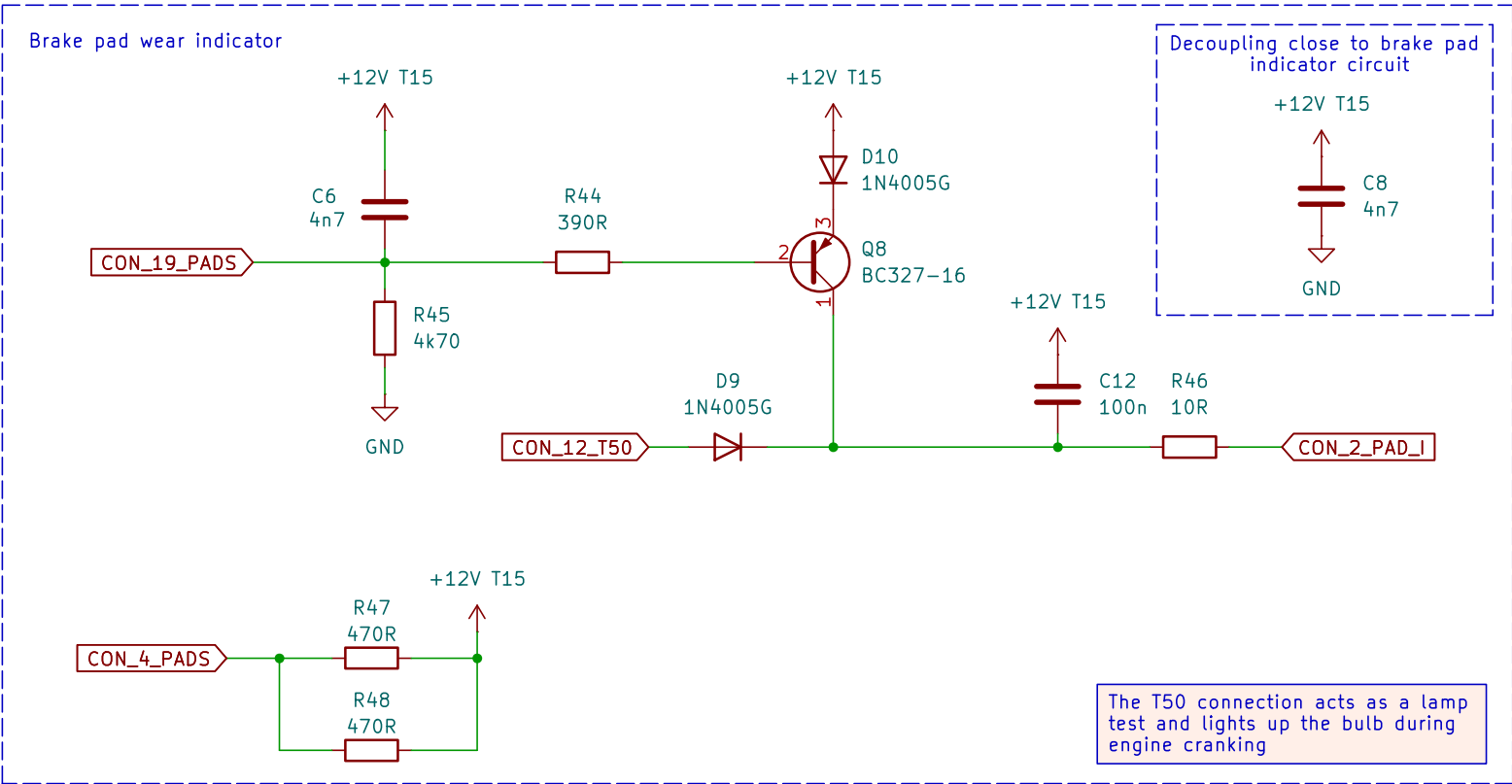
Size: A4

Date: 2024-06-15

Rev: 2

KiCad E.D.A. 9.0.3

Id: 3/5



## BMW\_E30\_VFL\_SI\_Board\_Pad\_Wear\_Indicator

Revision 2.1 made by Reagan Ansel

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**

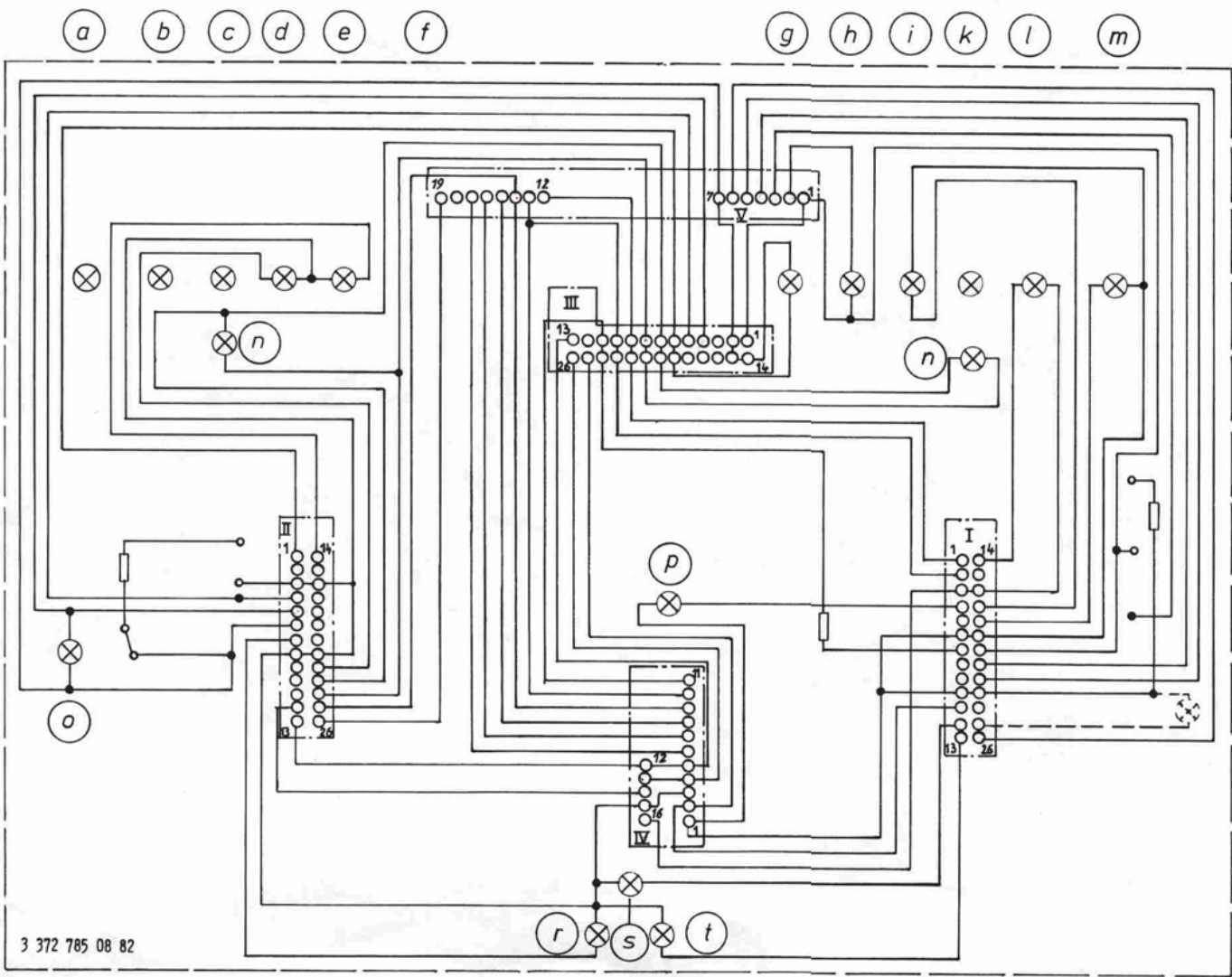
Size: A4

Date: 2024-06-15

Rev: 2

KiCad E.D.A. 9.0.3

Id: 4/5



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

Revision 2.1 made by Reagan Ansel

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. 9.0.3 Id: 5/5