The Last Book

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Chapter One

The J Half Bridge device

Smart Configuration Device SCD

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This is review of 2012 project J SCD Half Bridge.
SCD stands for Smart Configuration Device.

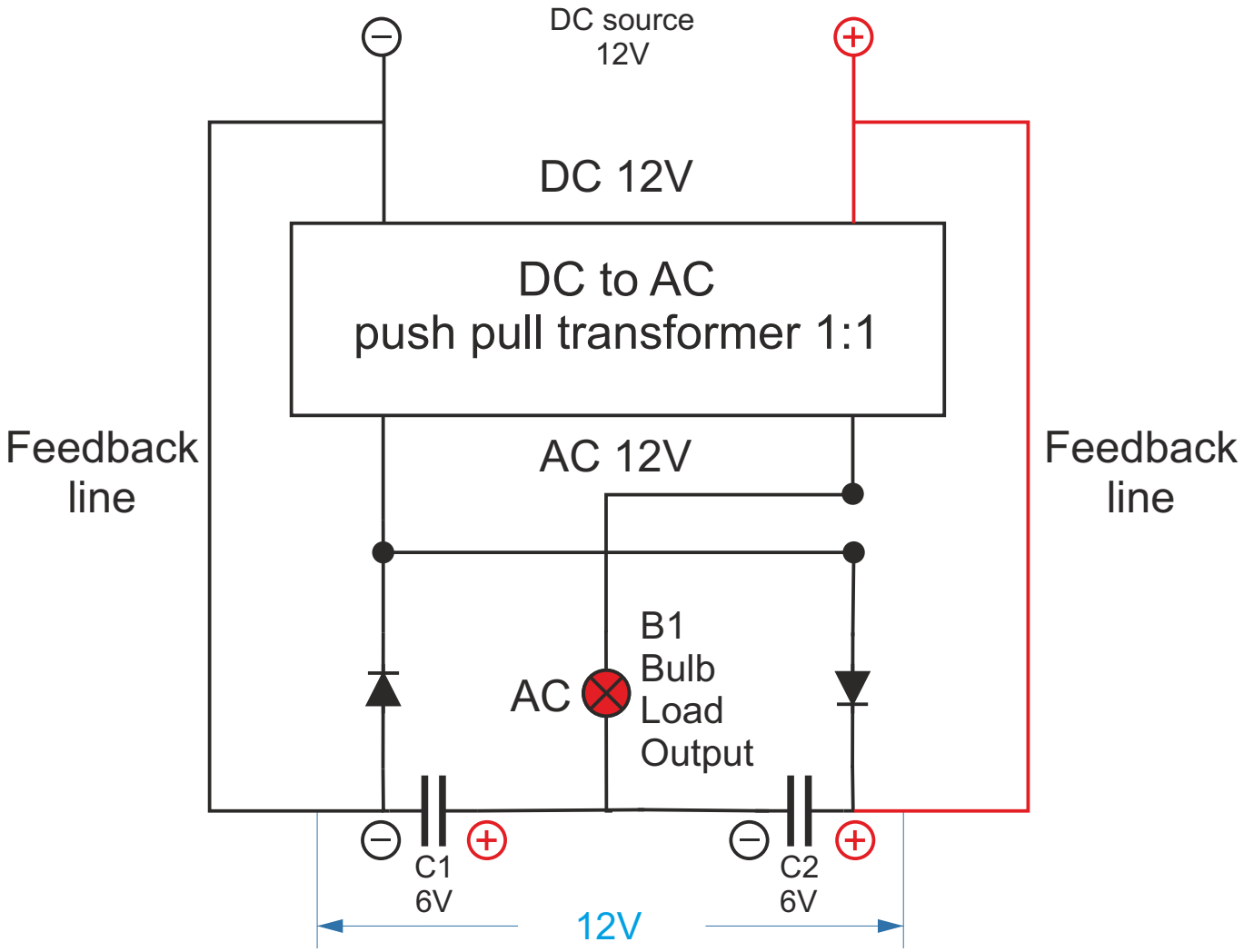
The J Half Bridge Device is another example of device which use energy and then capturing used energy and returning that energy to source.

From a distance device looks like it spends nothing or little. That is not true.
Device spends a lot, but it is returning energy to source.
In that case I have to only replenish losses to source to keep device running.

The J device has one lack. As a Half Bridge it has output voltage half the input voltage. That is reason why I moved forward to another concepts searching for better solution.

The J device is efficient push pull half bridge topology because it behave like half bridge and it returns used energy to source in both phases.

J Half Bridge Device



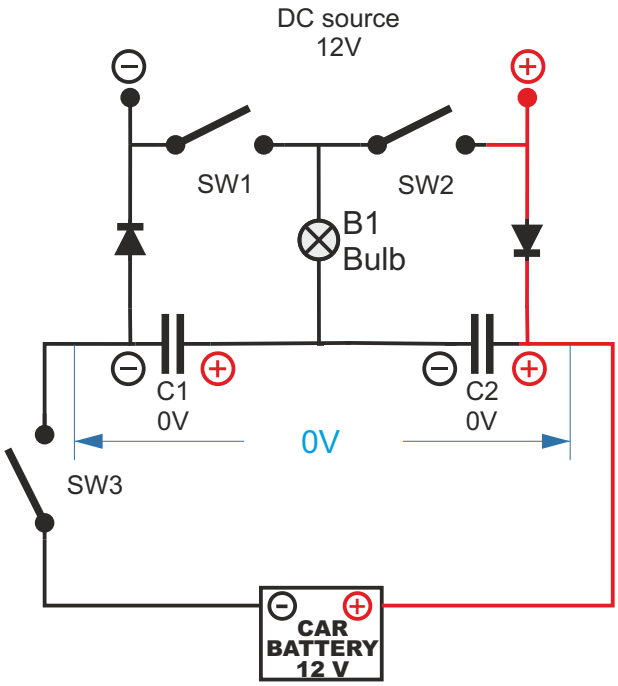
Push Pull and Half Bridge topologies

The Push Pull topology is different than Half Bridge topology.

Push Pull **output voltage is same as input voltage.**
It uses center tap primary coil or trifilar coil with 2 primaries and 1 secondary.

Half Bridge **output voltage is half of input voltage.**
It uses 2 capacitors in series.

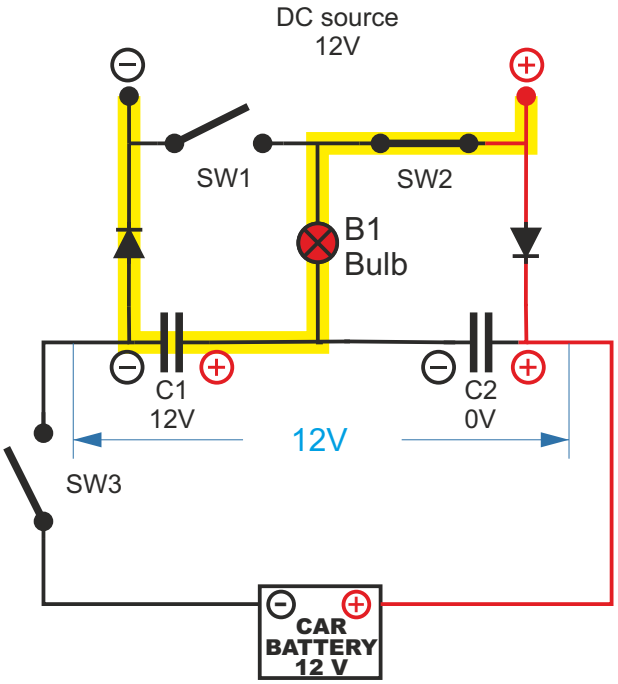
EXPERIMENT 1



From this point nothing special. I made simple experiment.

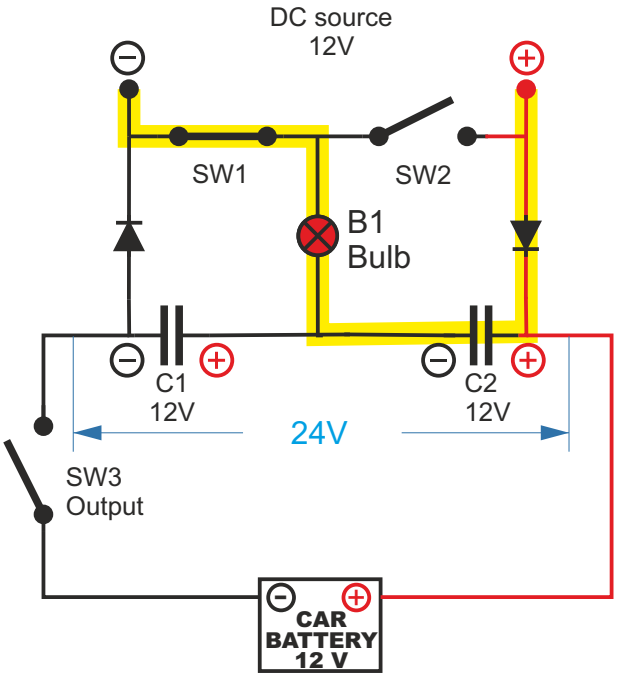
EXPERIMENT 1

PHASE 1



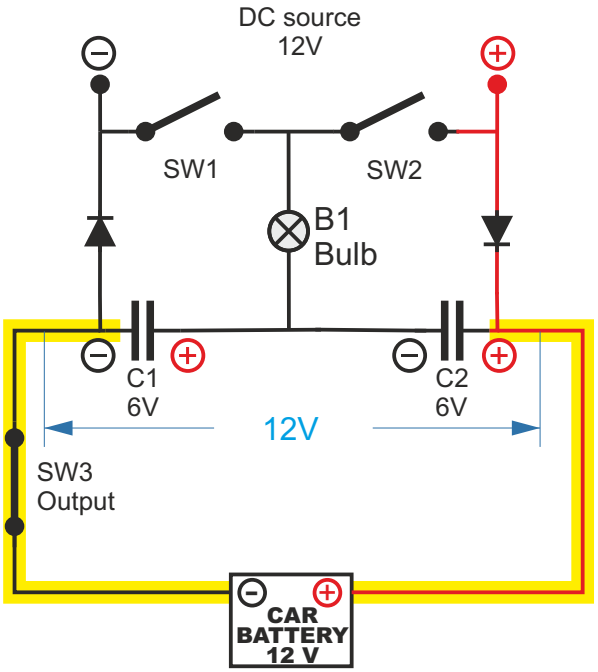
SW2 is closed, C1 is filled with 12V.

PHASE 2



SW1 is closed, C2 is filled with 12V.
We have 24V on that line because C1 and C2 are in serial connection.

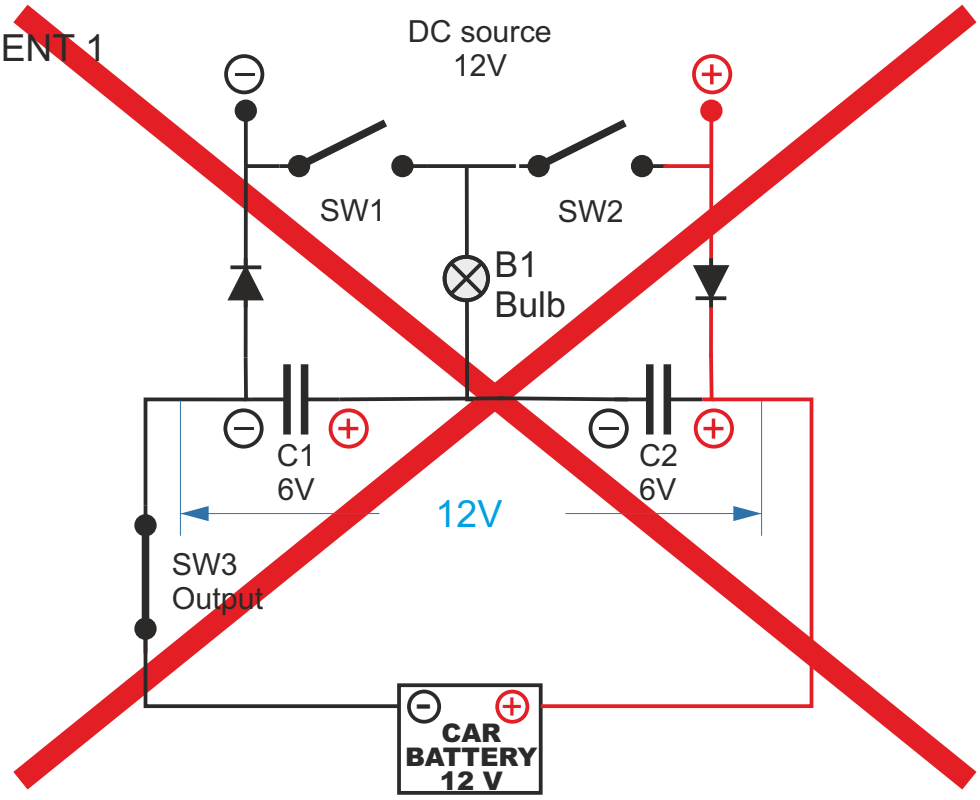
PHASE 3



Fill both capacitors with 12V and then empty them in serial to battery.
SW3 is closed, 1/2 of input Energy is dumped to battery.

Law of serial connection.
Two capacitors in serial has sum of their voltage but half of capacity.

EXPERIMENT 1



SW3 is closed, 1/2 of input Energy is dumped to battery.

Law of serial connection.
Two capacitors in serial has sum of their voltage but half of capacity.

Only one half of input energy is dumped to battery so I did nothing.

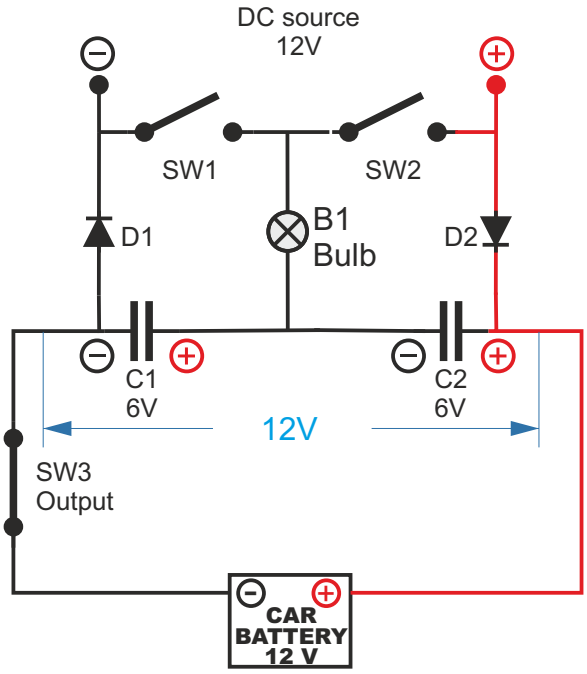
Experiment Failed!

EXPERIMENT 2

Now, let try this little bit different!

C1 and C2 are filled SEQUENTIALLY.
In that case all the energy is transferred form source to output,
not only 1/2 of energy like in experiment 1.

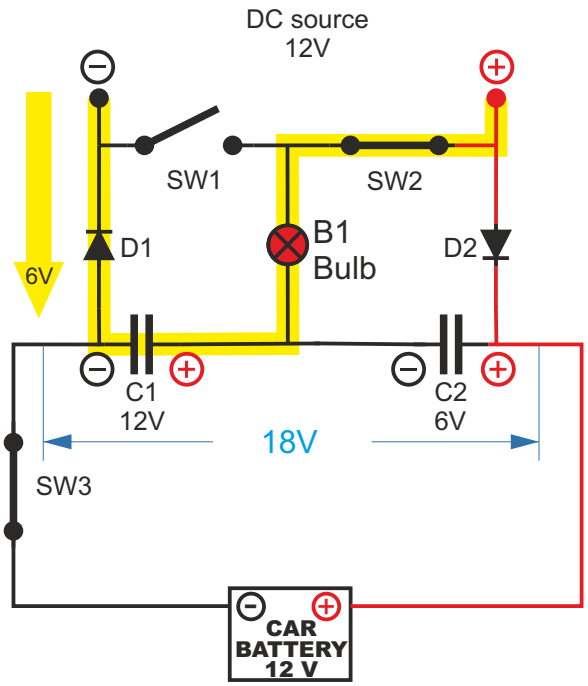
EXPERIMENT 2



Let's start from the end of previous experiment.
C1 has 6V.
C2 has 6V.

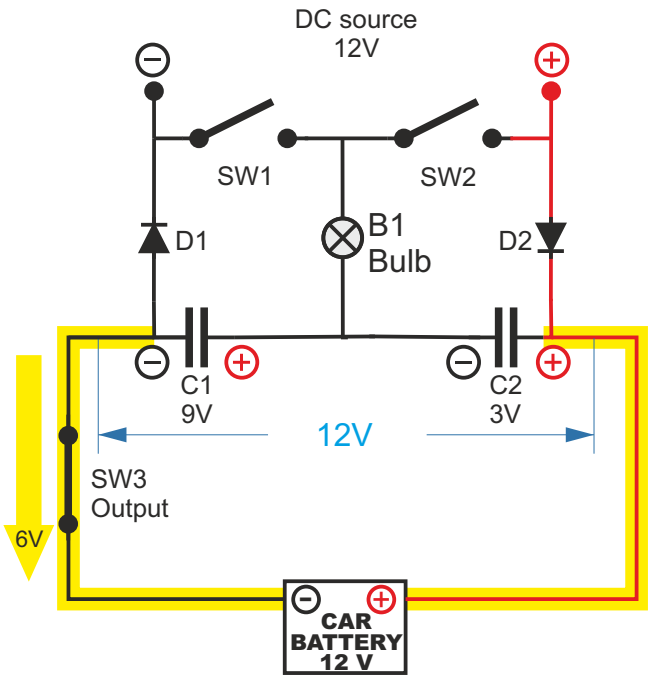
EXPERIMENT 2

PHASE 1



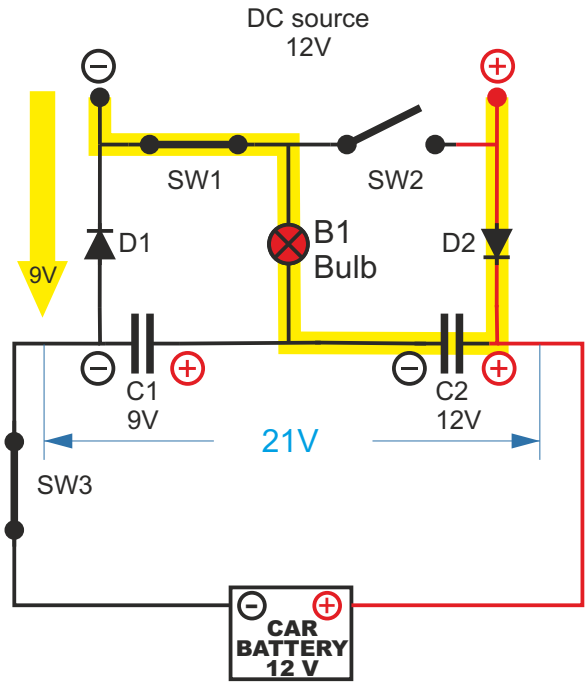
SW2 is closed, C1 is filled to 12V with additional **6V** from input.
Diode D2 **prevents** C2 to empty itself trough SW2.

PHASE 1



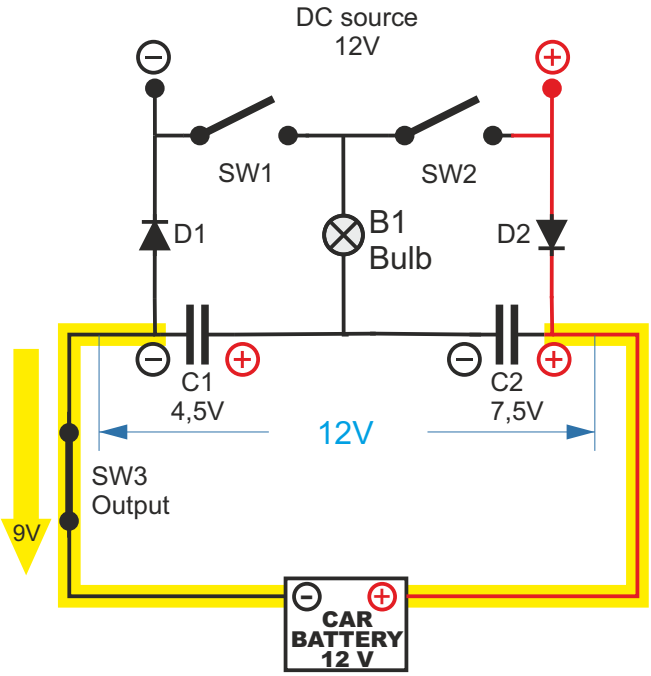
SW2 is open, C1, C2 are emptying surplus **6V** to battery. The energy from input is SAME as energy on output.

PHASE 2



SW1 is closed, C2 is filled to 12V with additional 9V from input.
Diode D1 **prevents** C1 to empty itself trough SW1.

PHASE 2



SW2 is closed, C1, C2 are emptying surplus 9V to battery. The energy from input is SAME as energy on output.

EXPERIMENT 2

Experiment was success!

The energy input match energy output.
The amount of energy from input is the same as amount of energy at output.

In both phases energy is passing through B1 Bulb (AC output).
In both phases used energy is returned back to battery.

After numerous pulses input voltage on C1 and C2 will equalize.

If there are no diodes D1 and D2 there will be no effect because C1 and C2 will empty themself before effect can take place.

Circuit is modified push pull half bridge where nobody noticed that C1 and C2 are in **series** and can produce higher voltage to overcome source.

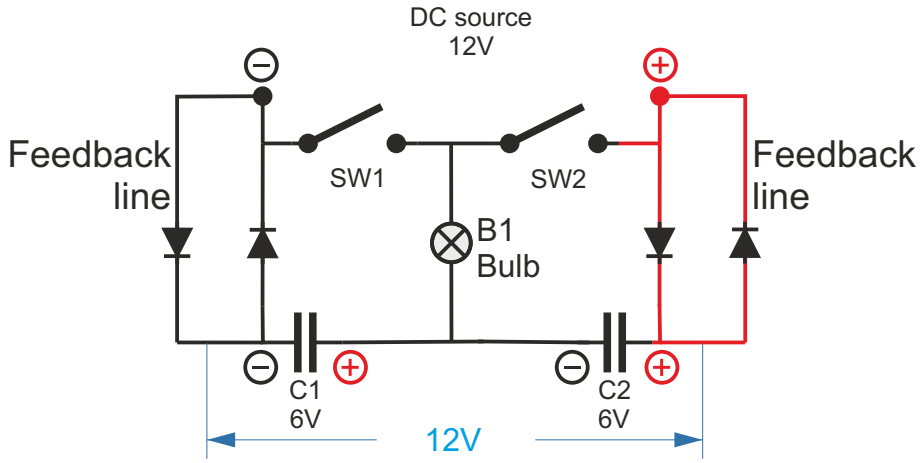
Circuit use energy and then that energy is captured in C1, C2 and automatically returned to battery.

In my experiment I used capacitor instead battery.

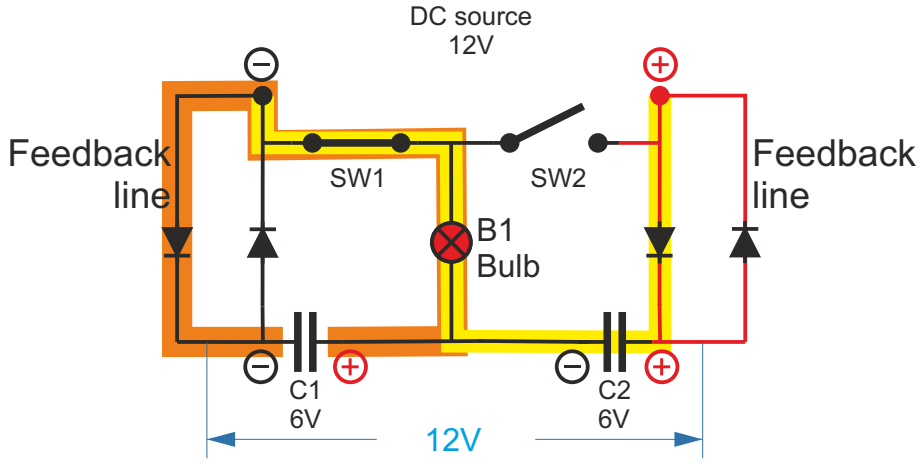
The flaw of that system is that bulb (output) has only 1/2 of input voltage.

J Half Bridge Device

When I tried to Feeding back to source instead of battery, problem arises.
Tesla pointed that problem in his patent 577670
APPARATUS FOR PRODUCING ELECTRIC CURRENTS.

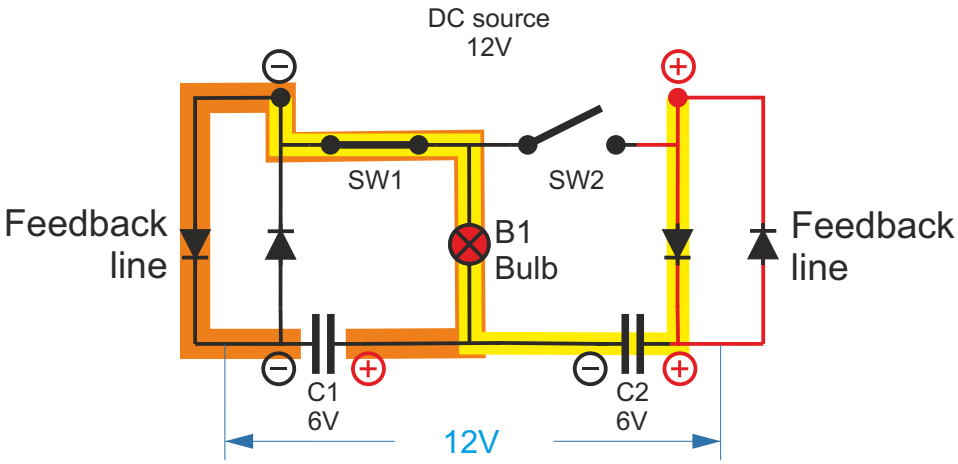


Problem:
When SW1 is **closed** it fills C2, but at same time C1 **empty** itself trough switch SW1.
Now the circuits becomes ordinary push pull half bridge, where C1 and C2 can not return energy to source because C1 empty itself before it can be useful.
All this diodes are not necessary. I left them only to explain circuit step by step.
With additional battery circuit works perfect, but when I tried to feedback to source it becomes useless (as circuit which returns energy to source).

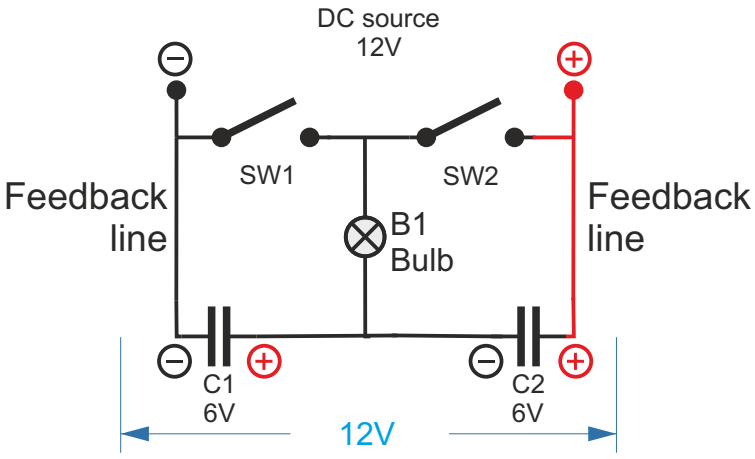


All the diodes in this configuration are not needed, feedback line is the same line used for filling capacitors.

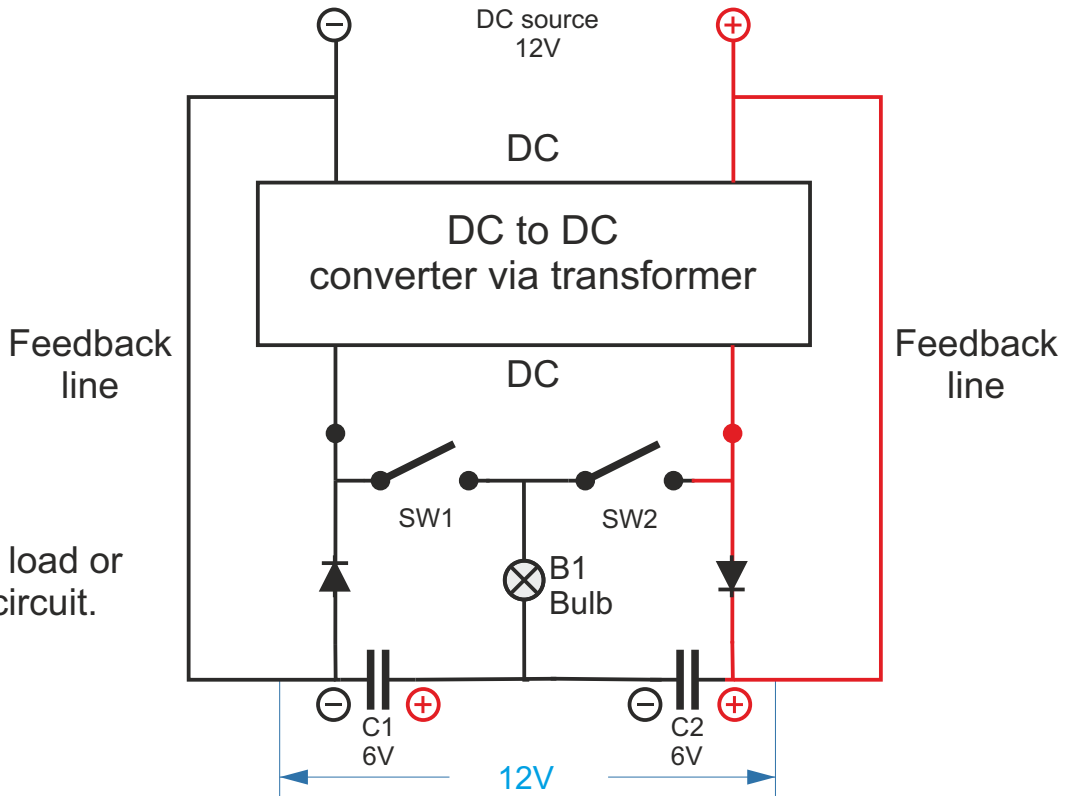
This is ordinary push pull half bridge topology where nobody saw that C1 and C2 are in series and that they can be used otherwise.



Same Circuits, diodes are not needed and I left them only to show current flow

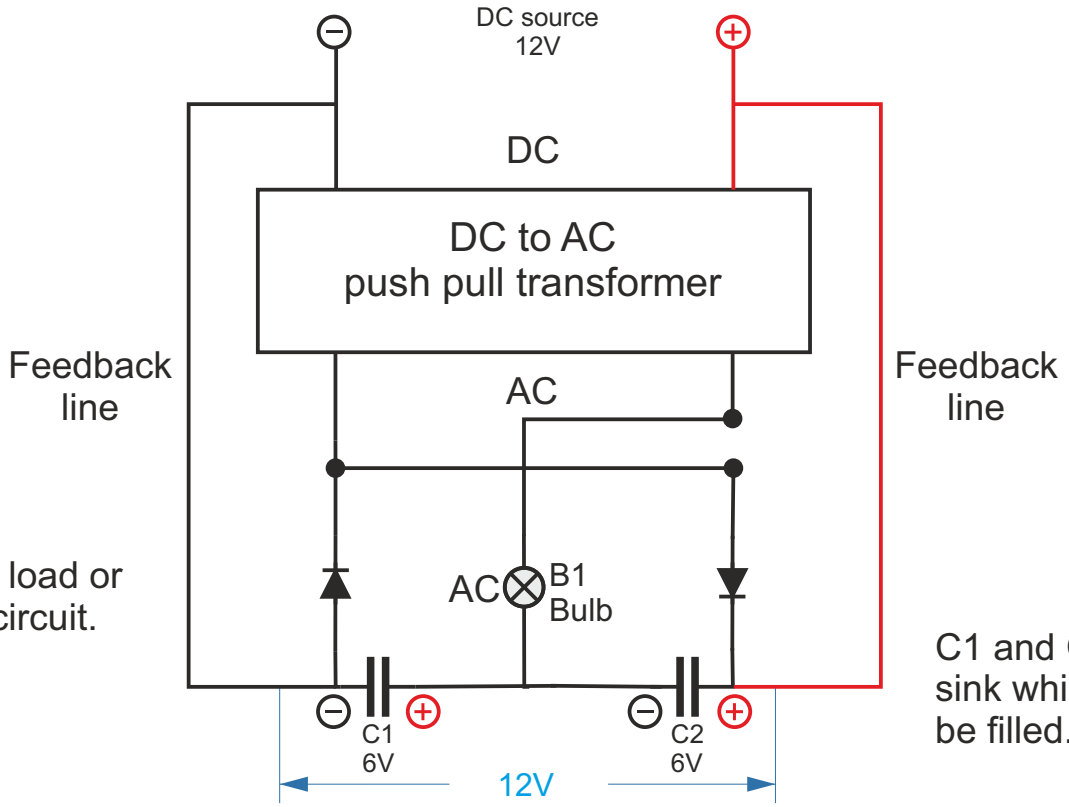


Solution for problem is to isolate feedback from rest of circuit.
Diodes are needed to prevent C1 discharge through SW1 nad C2 through SW2.



B1 bulb is load or output of circuit.

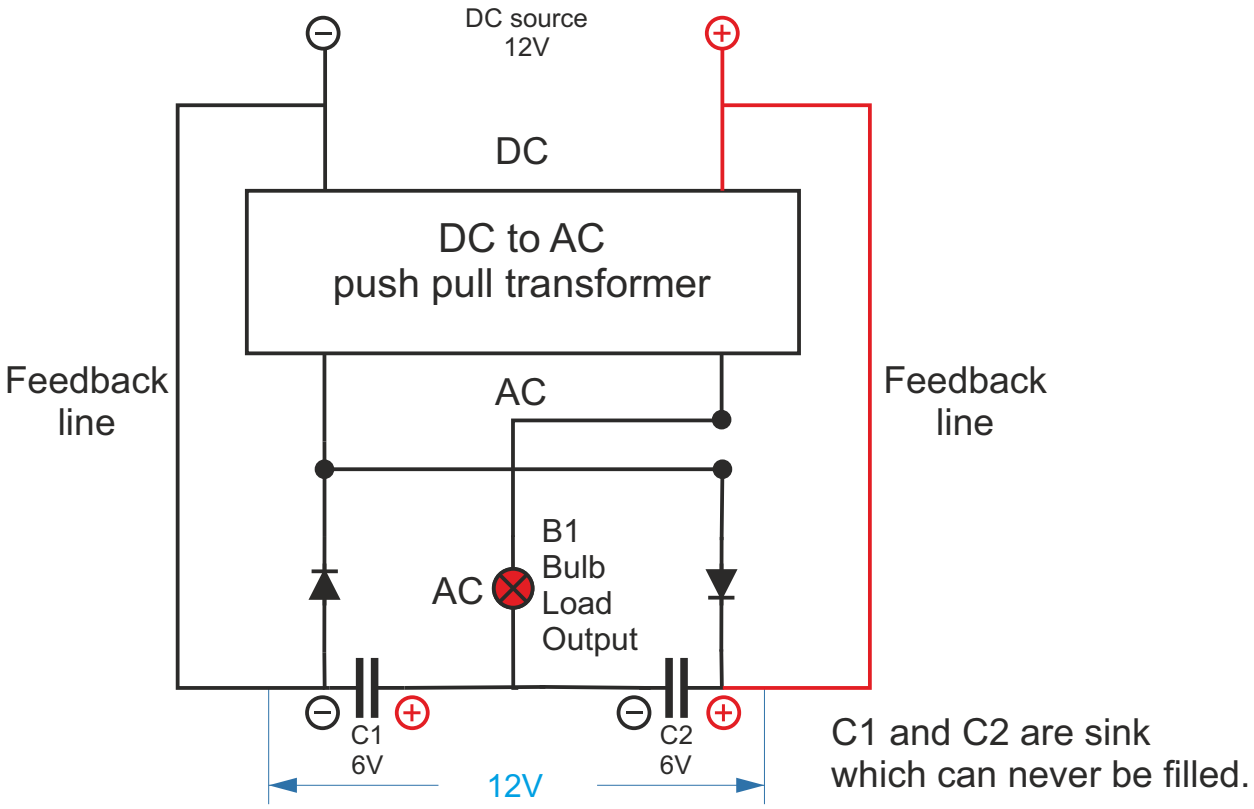
Solution for problem is to isolate feedback from rest of circuit.
Diodes are needed to prevent C1 discharge through SW1 nad C2 through SW2.
In this case with AC input switches are not needed.



B1 bulb is load or output of circuit.

C1 and C2 acts as a sink which can newer be filled.

J Half Bridge Device



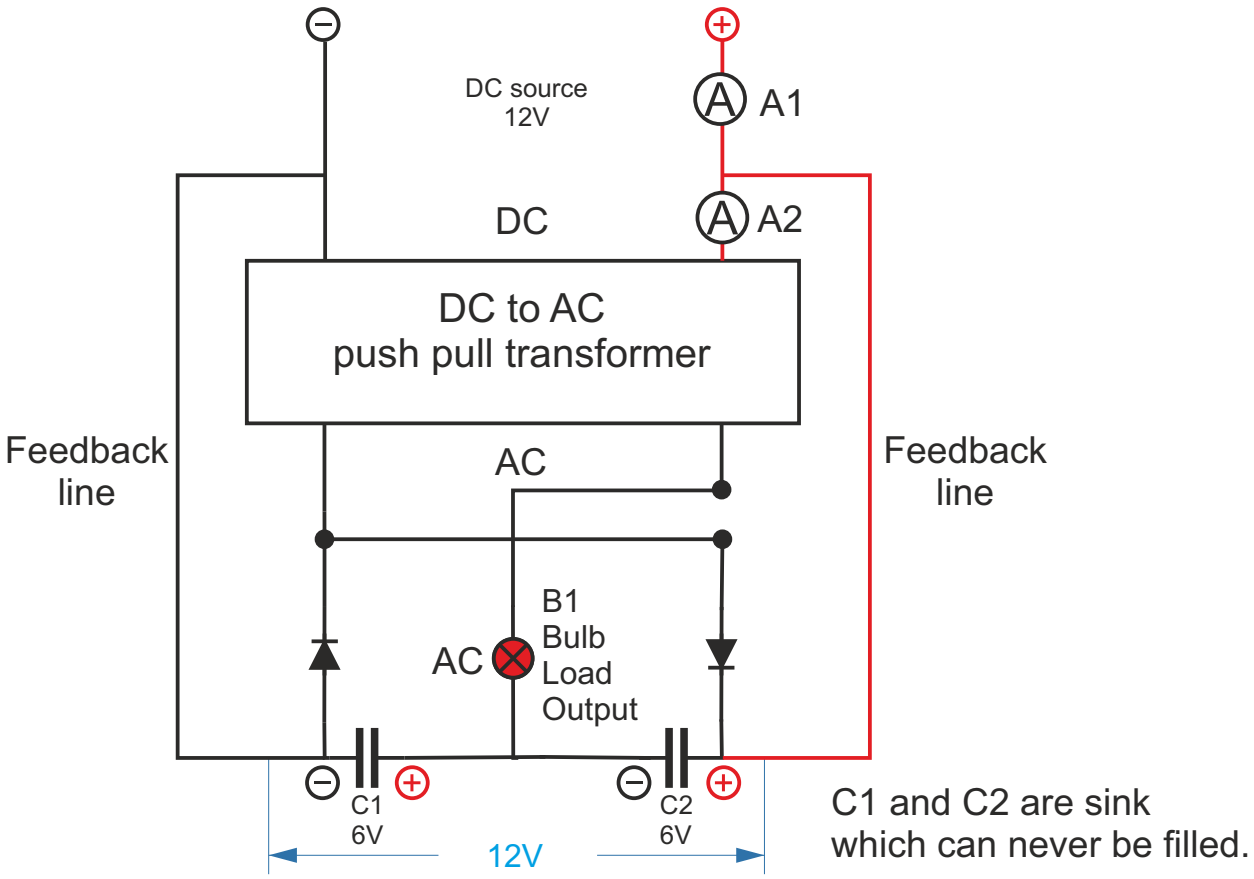
With this simple circuit energy is returned in both AC phases to source.
How much energy?

All the energy from output of push pull transformer is returned to source minus losses.

For the moment!
If this circuit is returning even 10% of used energy it would be most efficient transformer in the world. In reality it returns all of the used energy through B1 bulb (load, output) from the output of transformer.

J Half Bridge Device

How to measure?



Ampermeter A1 measure current from source
Ampermeter A2 measure current from source plus feedback current.
Difference A2 - A1 is gain.

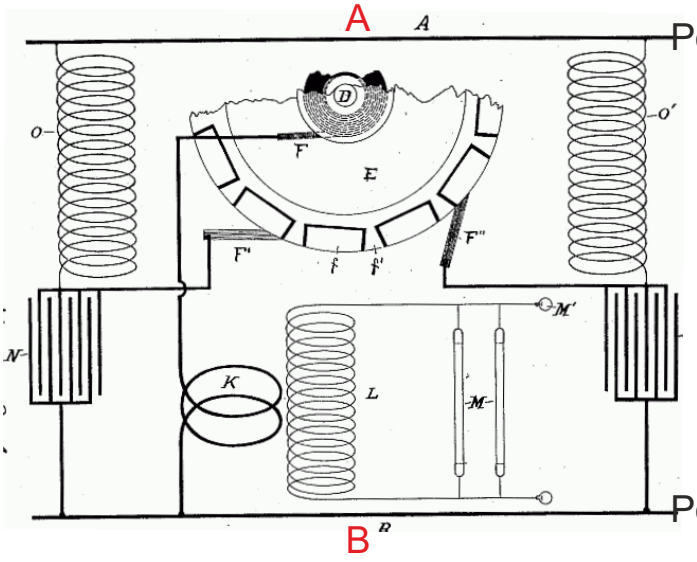
Tesla know about this and patented this in 3 patents.

Patent 577670, 568180, 568176
APPARATUS FOR PRODUCING ELECTRIC CURRENTS.

1. He was trying to make push pull with mechanical switches? Hmm...
2. He patented this 3 times, it was important to him!
3. He made something hidden for next generations, not so obvious either?

I looked at this circuit and tried to see how it produces high frequency, but I can not find where extra frequency is coming from.
The circuit follows frequency from mechanical switch.
Why this circuit has power line A and power line B separated?

Tesla patent 577670
APPARATUS FOR PRODUCING ELECTRIC CURRENTS
OF HIGH FREQUENCY

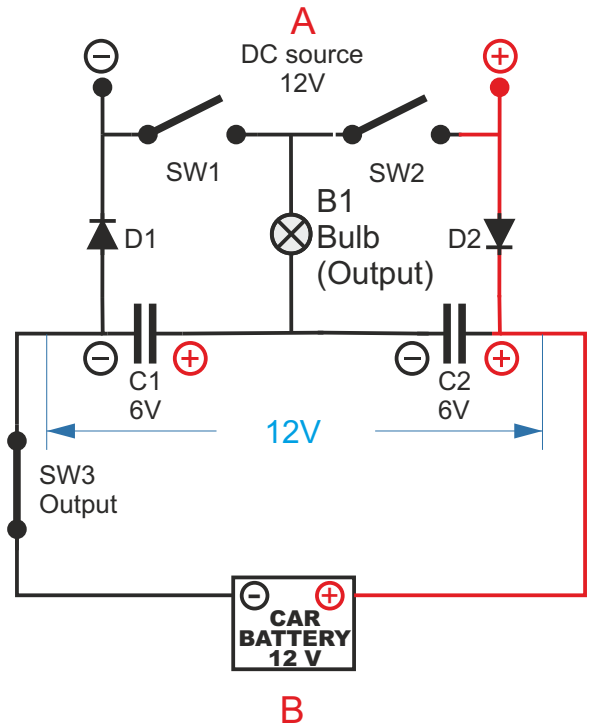


Power line A

It looks to me very similar to my circuit.

Capacitors are in series!

Power line B



On this pages is my project from 2012 where I am using third switch as solution to problem.

Yes, **Tesla know about this** and he placed it in his patent:

Patent 577670
APPARATUS FOR PRODUCING ELECTRIC CURRENTS.

When you close switch 1 , C1 will be emptied through feedback line and switch 1.

Same is for switch 2.
When you close switch 2 , C1 will be emptied through feedback line and switch 2.

To prevent this I come up with partial solution.
I did not want to use coils because of losses, instead I tried to find only capacitors solution.

Place switch 3 in between capacitors and make device in 3 phase instead of 2.

I made controller with 3 phase output and placed transistors instead switches.
T1 is low side and T2, T3 are high side transistors.

And the thing worked.

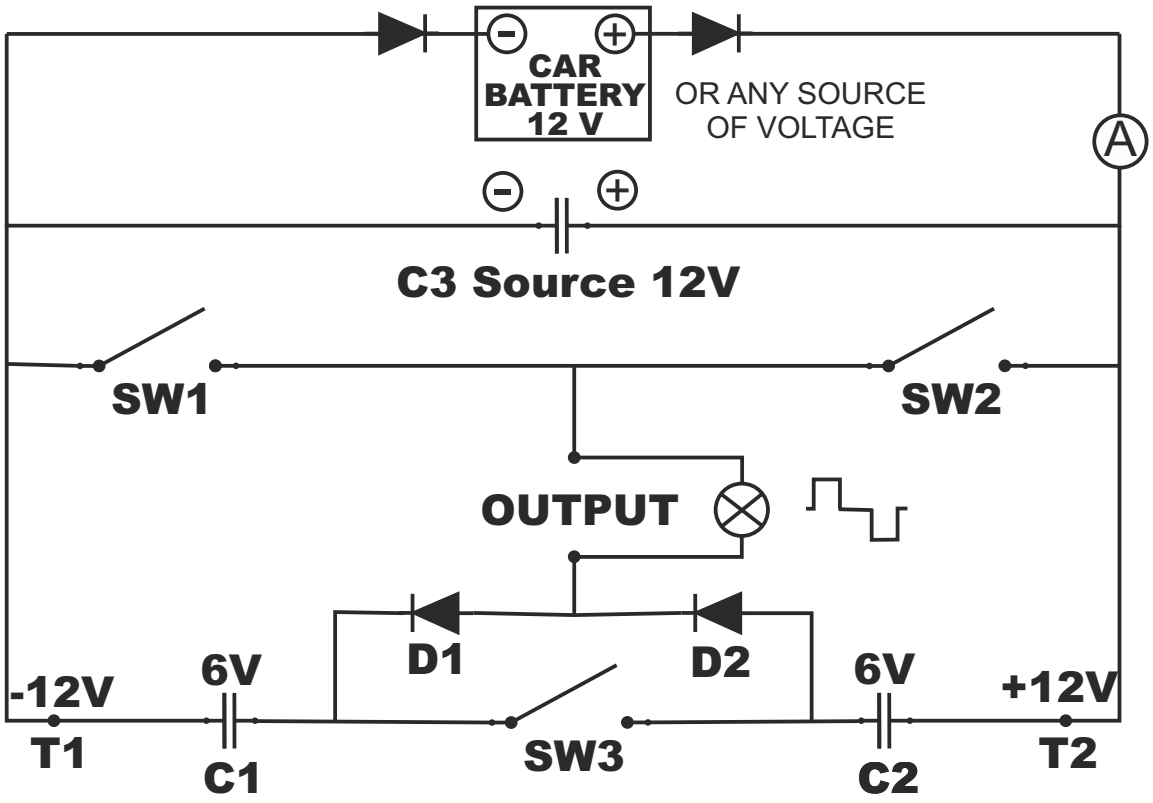
I was having problems with T3 transistor which blew often.
All my transistors were mosfets (IRF740)

The controller which has dead time for all 3 phases was nightmare,
but I solved it with SG3525, Decade counter, AND gates and mosfet drivers IR2110.

The third switch also made problems.
With some loads thing worked perfectly, but with others it started to spend energy.

It was complicated to do.

At same time I made Zero device and I postpone this project and moved to Q project searching for maybe little bit more elegant solution.

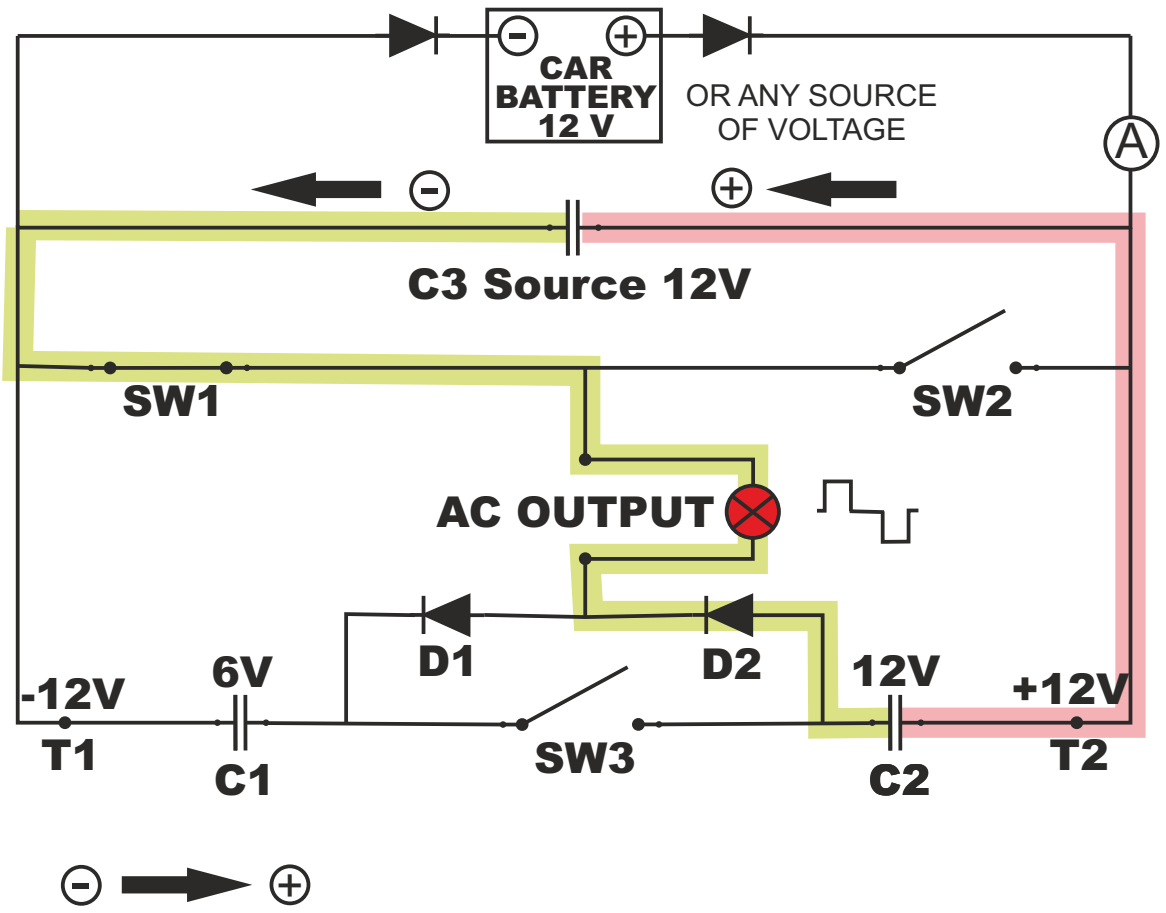


Initial
C1=C2= 22 uF 400 V
C3=200 uF 400 V

Switching sequence
DT = Dead Time (SW1=OFF, SW2=OFF, SW3=OFF)
SW1-DT-SW3-DT-SW2-DT-SW3-DT-Repeat

When SW3 = **ON** C1 and C2 are in **serial** which means C1+C2=12V. 6V+6V=12V in points T1 and T2.

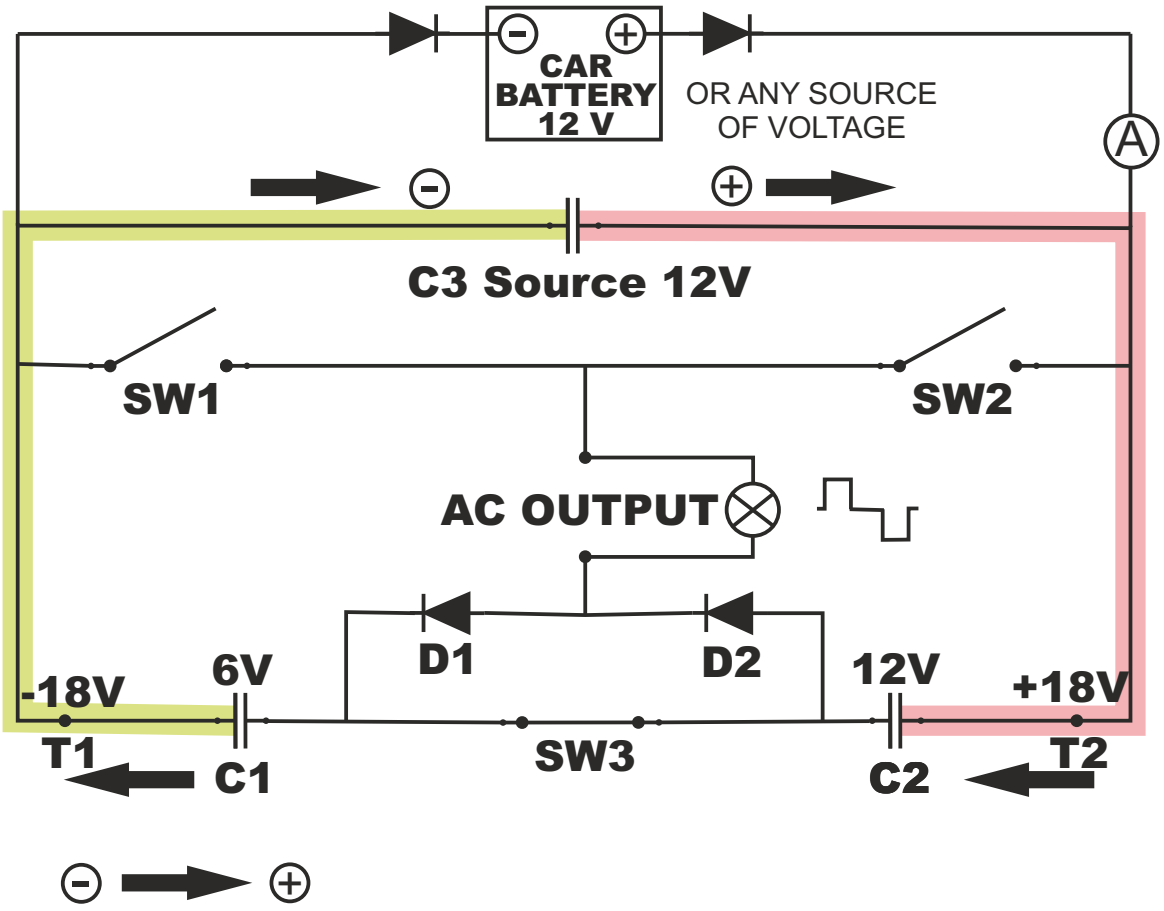
Device is returning energy to start using law of serial connection.



Step 1.
SW1=ON , SW3=OFF , SW2=OFF
C2 is charging through SW1 and **output**
and D2 to 12V.
On that path is our output and we use passing charge charging the C2.
Energy is captured. It is not lost. And on it's path to charge C2 we use that energy on our output. On output can be placed transformer or load directly.

SW3=OFF is needed, otherwise C1 will discharge through SW1

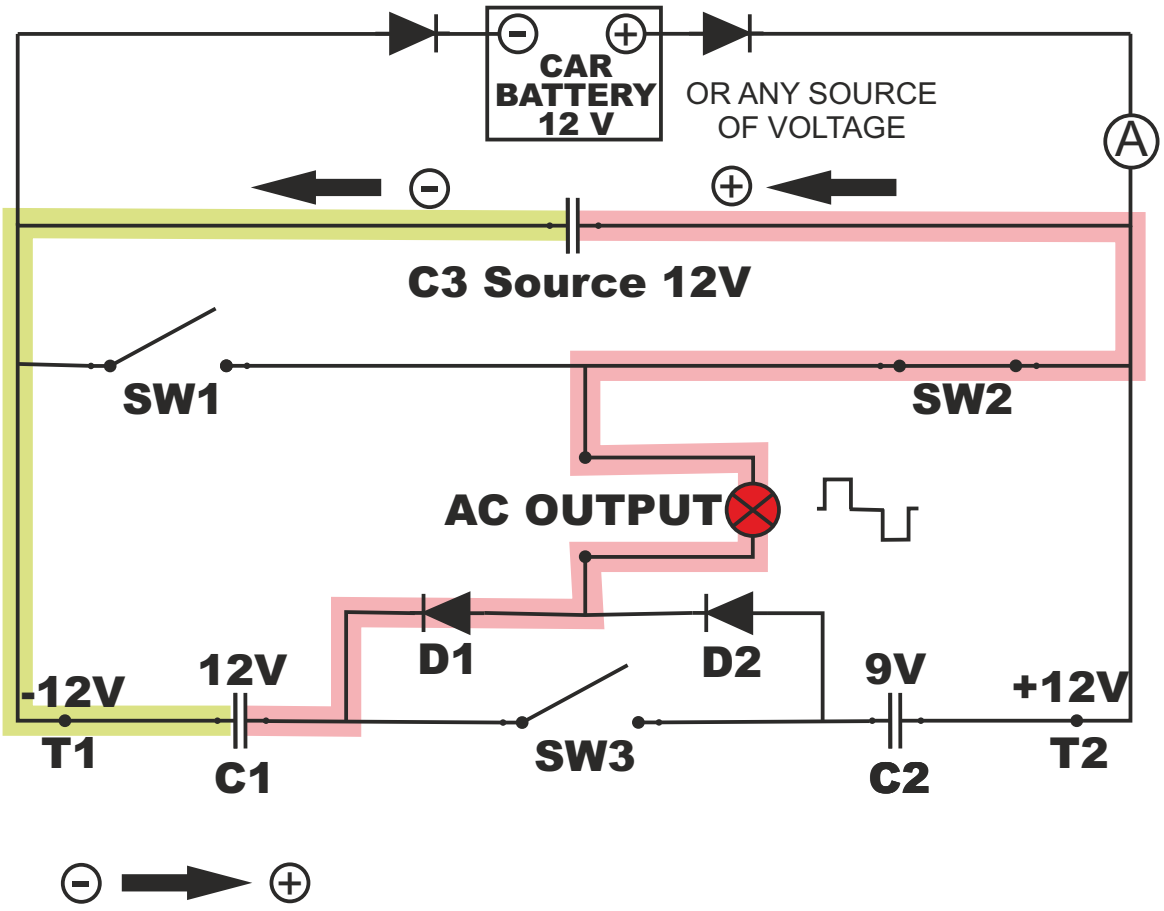
SW1=OFF , SW3=OFF , SW2=OFF
Dead Time



Step 2.

SW3=ON , SW1=OFF , SW2=OFF
Serial C1+C2 is discharging back to C3 (Source).
C1+C2=12V+6V=18V in T1 and T2.
C1 and C2 are in serial which means that
T1 and T2 point are 18V. That is 6V more
than C3 voltage (Source). The charge from serial
C1 and C2 are going back to C3 until
they equalize to 12V. After equalizing C1=3V
and C2=9V.
Same amount of charge from charging C2 is going
back to C3.

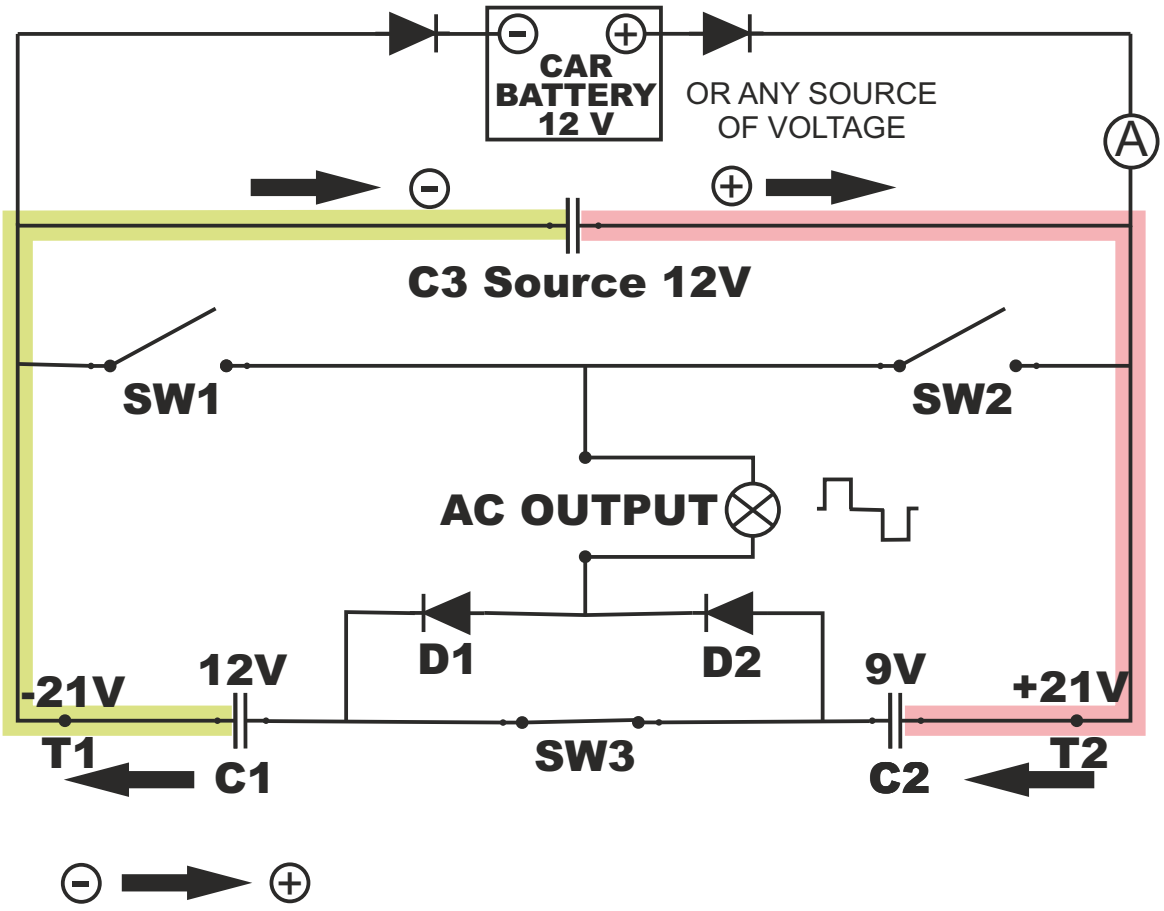
SW3=OFF, SW1=OFF , SW2=OFF
Dead Time



Step 3.
SW2=ON , SW1=OFF , SW3=OFF
C1 is charging through SW2 and **output**
and D1 to 12V.
On that path is our output and we use passing charge charging the C1.
Energy is captured. It is not lost. And on it's path to charge C1 we use that energy on our output. On output can be placed transformer or load directly.

SW3=OFF is needed, otherwise C2 will discharge through SW2

SW2=OFF , SW1=OFF , SW3=OFF
Dead Time



Step 4.

SW3=ON , SW1=OFF , SW2=OFF
Serial C1+C2 is discharging back to C3 (Source).
C1+C2=9V+12V=21V in T1 and T2.
C1 and C2 are in serial which means that
T1 and T2 point are 21V. That is 9V more
than C3 voltage (Source). The charge from serial
C1 and C2 are going back to C3 until
they equalize to 12V. After equalizing C1=7,5V
and C2=4,5V.
Same amount of charge from charging C1 is going
back to C3.

SW3=OFF, SW1=OFF , SW2=OFF
Dead Time

Goto step 1. Repeat.

Bigger capacitors in circuit = more current.

Output voltage is approximately 50-80% of input voltage(depends on resistance of load), but device returns energy to source so it doesn't matter.

Device is only moving charge forth and back to source and use that charge on it’s path.

Frequency can be any desired (50Hz), 50-5000Hz is best with electrolytic capacitors
Lower frequency, larger capacity C1, C2, C3 is needed.
Higher frequency, smaller capacity C1, C2, C3 is needed.

Circuit will work with SW1 and SW2 without SW3 (partially) only if the load is highly resistive like primary of transformer with lots of turns.
Secondary could be anything.
High resistivity prevents C1 or C2 to discharge quickly through SW1 or SW2.
If they discharge circuit will act as any other normal circuit.
The SW3 is there to prevent discharging C1 or C2 through SW1 or SW2.

C1 and C2 are sink which can never be filled.

Device has 2 sources alternately. C3 and C1+C2.

Device does not violate thermodynamics laws.

It is Smart Configuration Device rather than the free energy device. **SCD** Device.

Charging sequentially C1 and C2 and discharging serial C1 and C2 we move **charges** forth and back to source (C3) and use them on their path on our output which can be load directly or transformer.

There is no overall net energy consumption except losses in circuit wires.

Device use serial capacitor connection C1+C2 to raise voltage higher than source C3.

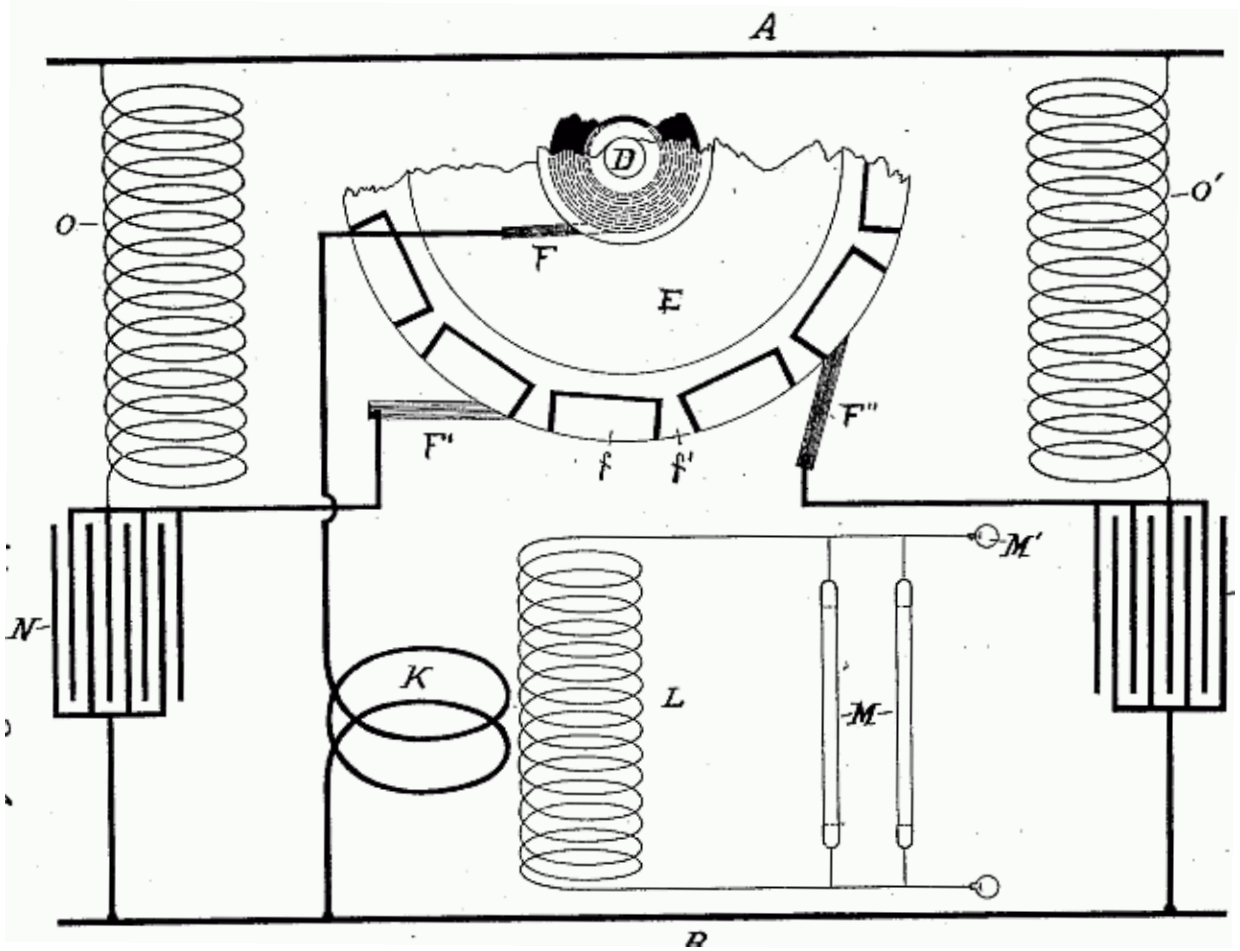
It is Tesla patent 577670 where Tesla describe device in details, but he avoids to mention serial capacitor effect so the patent can survive to this days.

“The present is theirs.
The future, for which I really worked, is mine.”

Nikola Tesla

Tesla patent 577670

APPARATUS FOR PRODUCING ELECTRIC CURRENTS ~~OF HIGH FREQUENCY~~



In memory to Great man who loved people no matter who they were.

Tesla will live as long as we remember him.

If you are satisfied feel free to DONATE for the

research to continue!

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