12/31/19

* <u>Cartridge</u> -> picks up electrical signals from grooves in record
- Signals -> PHONO
- MM -> moving magnet ; MC -> moving coil

* <u>Preamp</u>
- converts PHONO signals to LINE
- amplifies PHONO usually about 50x
so it can be heard
- also equalizes signal -> reduces treble
and increases bass to give flat signal

* A turntable has a built in preamp
if it has a *Line output* or *Phono input*

* <u>RCA cable</u> -> connects turntable to separate
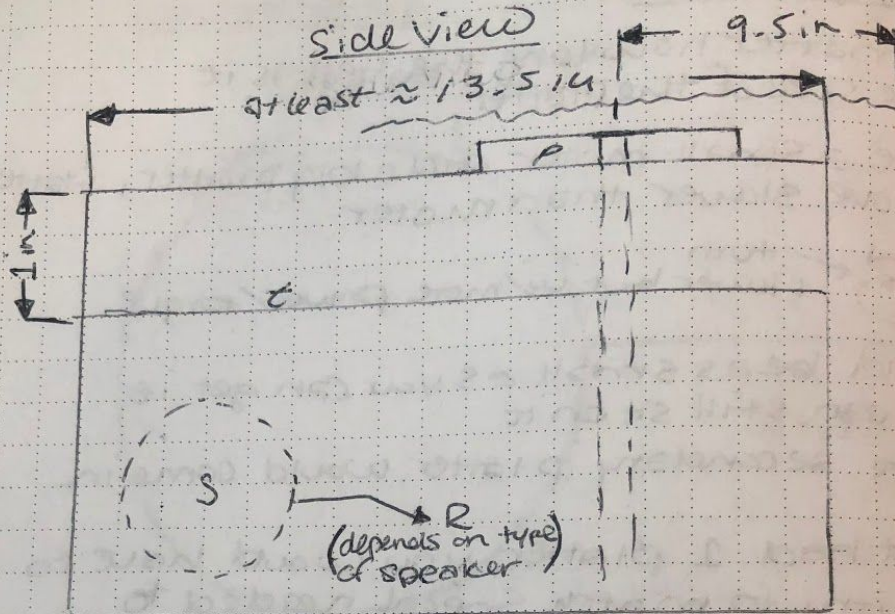preamp / speaker

<u>Stand alone preamps</u> -> expensive
-> what can I do instead to amplify
signal and equalize sound?

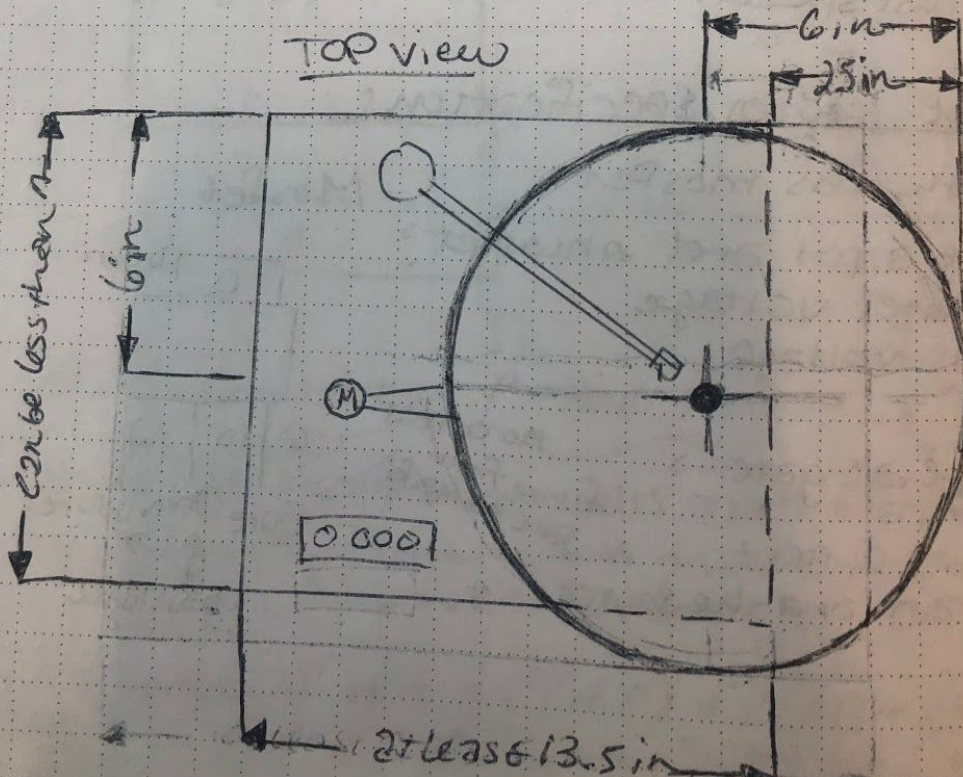<u>Amplifier</u> -> not same thing as speaker
-> you have to match amp to speaker by watt output,
impedance, and resistance of speaker
- don't connect a high Ω amp to a low Ω speaker

32

Side View

not to scale

9.5in

at least ≈ 13.5 in

P

1in

t

S | R
(depends on type)
of speaker

→ record

Key   S → speaker   t → tray line   P → Platter   M → moto

Written vertically on left margin:
B → bearing   R → resister   t → inner box tray/

TOP View

6in

25in

6in

can be less than

0.000

at least 13.5 in

Right margin notes (partially visible):
11/4/

* Co
- wh
  ta
• pu
- se
- m
* B
- es

* <u>To maintain gear ratio</u>

- It doesn't matter how long the belt is it matters the size of the platter

→ if you have a small motor and a big platter, Platter is going to move slower than motor
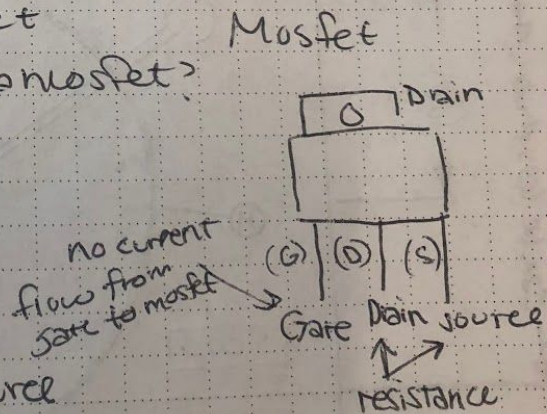
turn slower but w/more power/torque
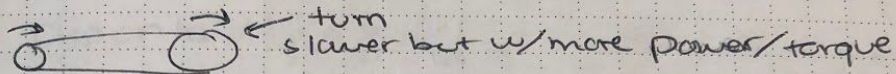
- Platter should be as small as you can get it while record can still sit on it
- This is where secondary platter would come in handy
- If you just had 1 platter, you would have to adjust circuitry to match speed needed to play record up to tempo.
- This is where a pot might come in handy to manually adjust speed.
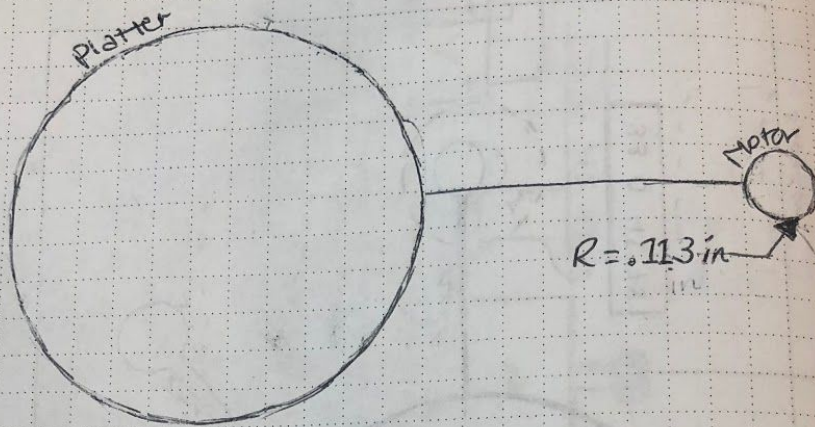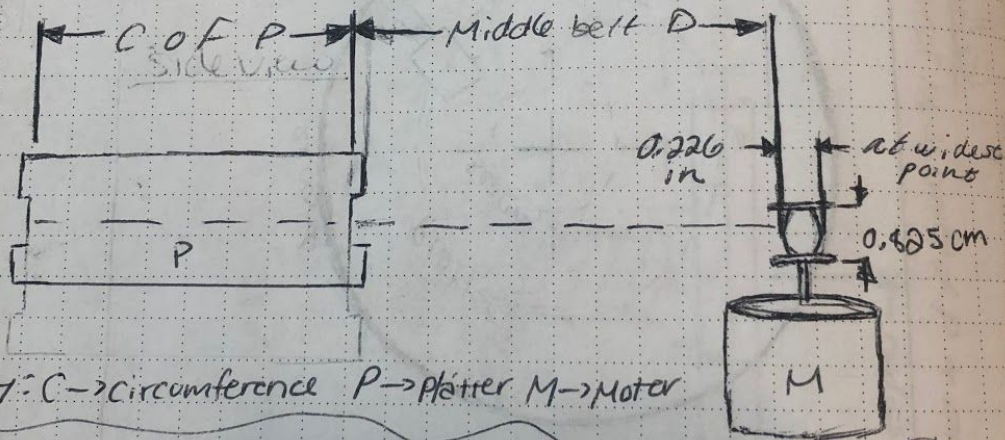
* <u>Mosfet / Pot Motor Specifications</u>

- Motor currently has mosfet

Mosfet

- can you wire a pot and a mosfet?
- Mosfet regulates voltage
- Pot controls voltage

<u>Mosfet</u>

* Apply voltage at gate → Creates electrical field to regulate current through the drain and the source

no current flow from gate to mosfet →

Drain

(G) (D) (S)

Gate Drain Source

↑ →
resistance

NOT TO SCALE

TOP view

Platter

Motor

R = .113 in

Side view

|← C of P →|← Middle belt D →|

Side view

0.226 in   ← at widest point

0.825 cm

P

M

Key: C→circumference P→Platter M→Motor

* what are record player belts made of? → rubber
- There are (flat) square, and round types
    → would be best

* Length of belt = C(of P) + C(M) + (middle belt D)
(in)   Belt = C of (P) + (.7099) + (Middle belt D)

* How big should the platter be?

→5/8

G 0.5in

0.25 in

plugs

4in

→Inside Rabbit length

C 1in

B

E 1

8.1

10.5in

E 12in

A 13.5in

5in

D→

Key
C → 1 in   G → .25 in
A → 13.5 in
E → 12 in

	TITLE Record player isometric	DATE	PERIOD
Iman Hathaway	Box Design draft	10/22/19	1st

E2

G2

TA

T

M

P

H

O

S

E2 → if (previous) E is 12in, E2 = 11.5in

H → 1 in

G2 → if (previous) G is .25in, G2 = 13in

Key

M → Motor   O → on/off switch   TA → tone Arm hole   T → threaded rod
▮ Top piece of tray   P → pot hole   S → 3way switch

Iman Hathaway	TITLE Record Player Isometric	DATE 10/25/19
	Box Tray Design Draft	

Side View
— center of M to center of P + radius 2
radius of record

Key
S —> Speaker
N —> nut
P —> Platter
B —> bearing
R —> resis ter
M —> motor
[33 0 45 78] —> Three way switch
I —> innerbox tray (removable)
V —> battery
T —> threaded
12g