SPYKER WORKSHOP

FUNCTIONAL 3D PRINTING

VERSION 1.2

FV101 / FV107 TANK KIT

DESIGNED BY MOO SPYKER

INTRODUCTION

Thank you for your purchase of your very own 3d printed tank kit!
This tank has been fully designed from the ground up to be 3d printed and ready to IR battle.
When fitted with a Clark TK22 board it is compatible with Tamiya and Heng Long IR battle systems.
Measures approximately 11 x 5.5 x 5.5 inches.

Spyker Workshop is not responsible for any harm caused from the use or construction of this machine.
Please use common sense when operating this machine!

See the separate **ELECTRONICS** page for how to wire the functions of the tank.

REQUIRED

- ABS Spray Paint Primer (Krylon Fusion, etc.)
- ABS or Super Glue to bond parts together
- Grease
- Paint
- Assembly
- Remove support material and clean-up parts
- Drill holes to larger sizes

TOOLS

- Misc household tools.
- Drill bits needed (Required to start building this kit!)
  - 0.07"
  - 5/64"
  - 3/32"
  - 1/8"
  - 9/64"
  - 3/16"
  - 3mm
  - 5mm
  - 7mm

SOLD INDIVIDUALLY

- Deck A, B or C
- 30mm, 76mm or 90mm gun
- Wheels A or B
- Optional Storage boxes A, B or C

ELECTRONICS REQUIRED

- Transmitter / Receiver
- Electronic controller board like Clark TK22
- IR emitter
- Speaker / Volume Control
- Tamiya apple or similar receiver to pick up IR damage
- 2x 370 brushed motors
- 12 wire slip-ring for 360 turret rotation (Optional)
- 1x Micro servo modified for 360 degree rotation
- 2x Micro servos
- Power Switch + Power Wires + Misc Wire
- 30mm Fan
- LED lights and resistors for lights + gun flashes

CONTROLLER BOARD REQUIRED

If you want to use a Clark TK22 board
you will need the following items:

- TK22 x 1 (Still not sure which sound set to use)
- TBU BASE x 1 (base to plug apple into)
- IR010 x 1 (IR emitter)
- HL Volume Control x 1
- CAB001 x 1 (small plug)
- HL Cable Set x 1
- IR Configuration Remote x1 (used to configure the board)

To purchase, send Clark an email: sales@clark-model.com

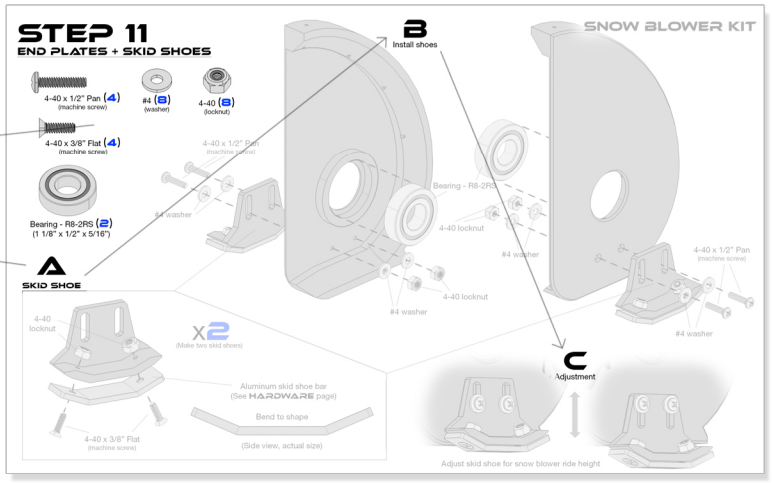
MANUAL WORKFLOW

This instruction manual has an easy to follow format on each page.

Under each step lists all the hardware needed for the current step.

Most steps have an order to follow **A**, **B**, **C**, etc.

Make sure you read all the text on each step so you don't miss anything!

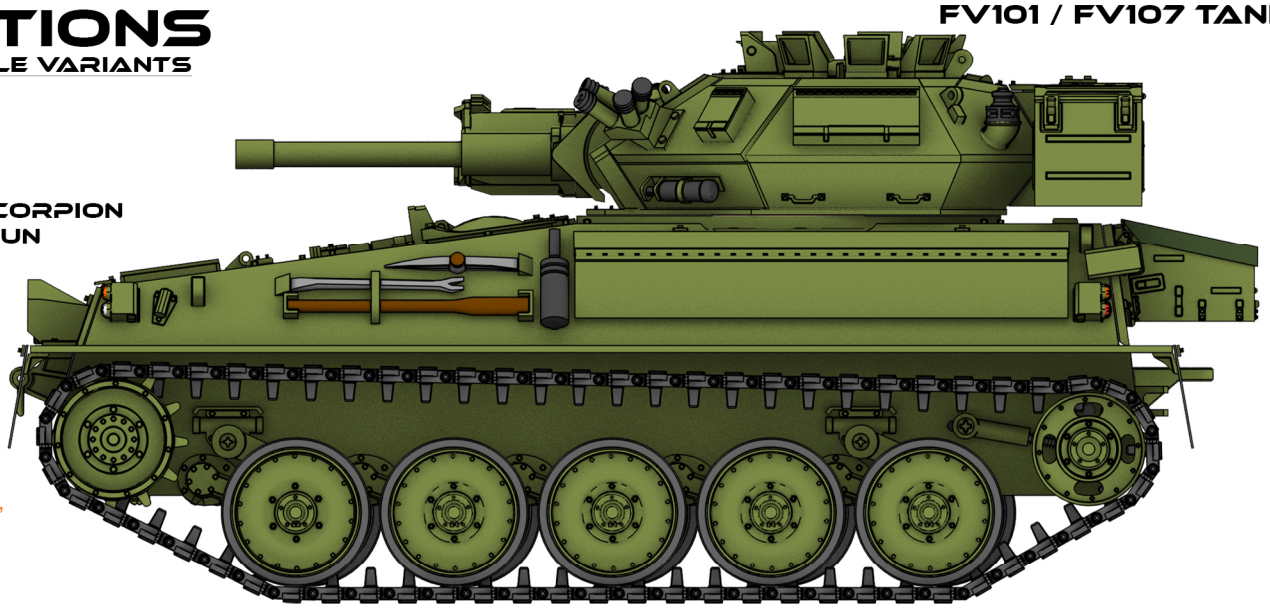


If you get stuck on any part during the build you can email me at spyker.sales@hotmail.com for assistance, have fun!

OPTIONS

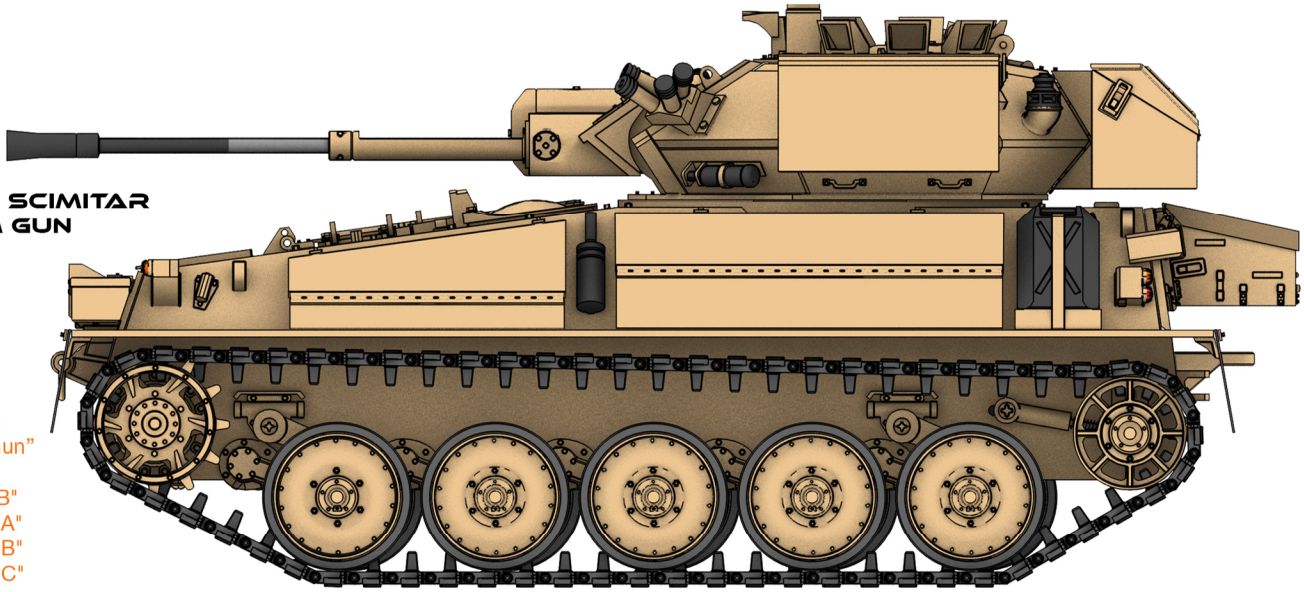
POSSIBLE VARIANTS

FV101 SCORPION 76MM GUN



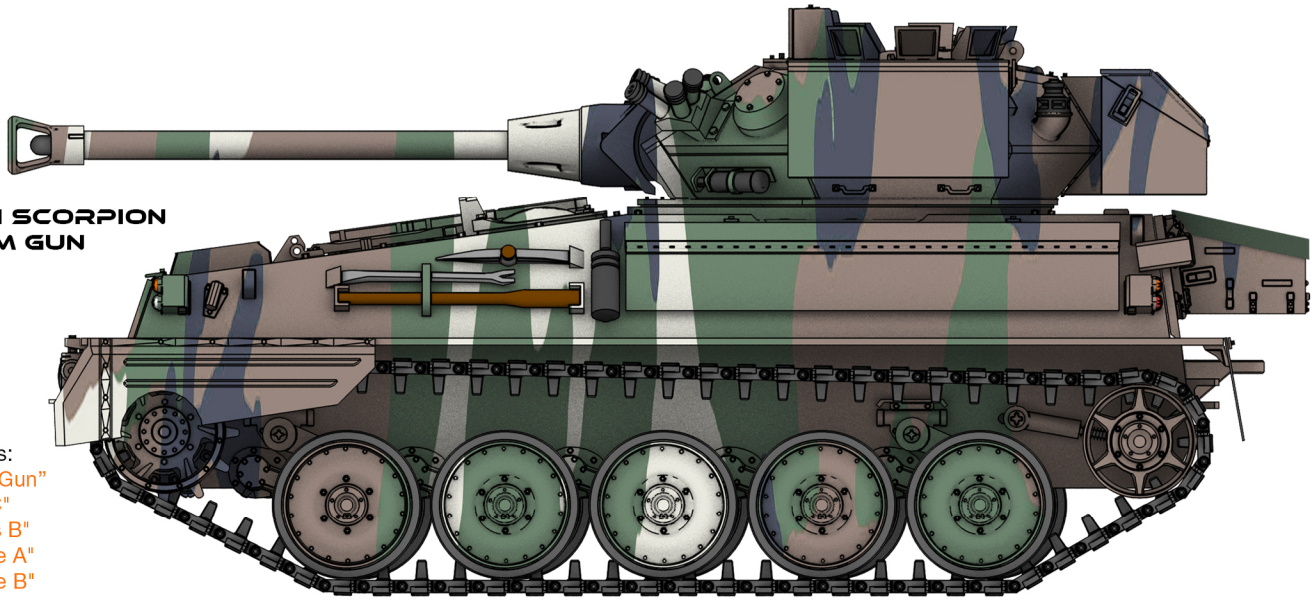
Requires:
“76mm Gun”
"Deck A"
"Wheels A"
"Storage A"

FV107 SCIMITAR 30MM GUN



Requires:
“30mm Gun”
"Deck B"
"Wheels B"
"Storage A"
"Storage B"
"Storage C"

FV101 SCORPION 90MM GUN



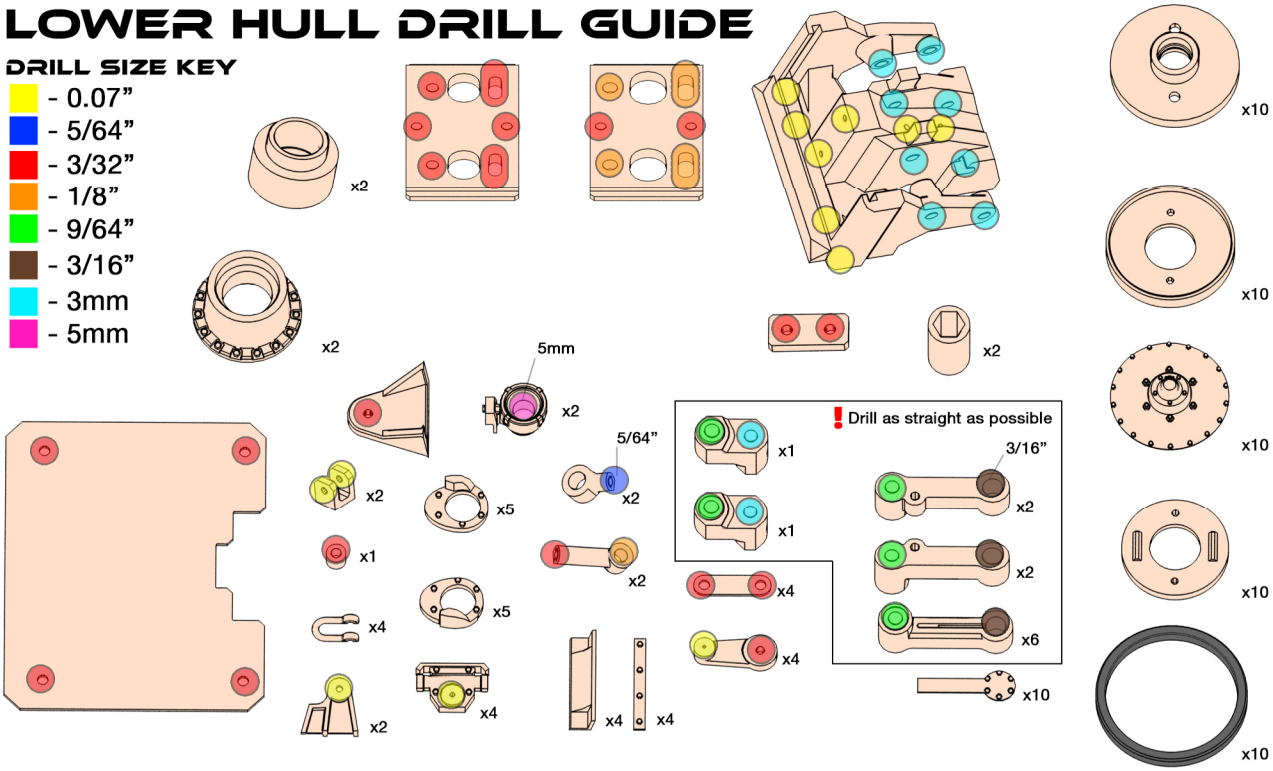
Requires:
“90mm Gun”
"Deck C"
"Wheels B"
"Storage A"
"Storage B"

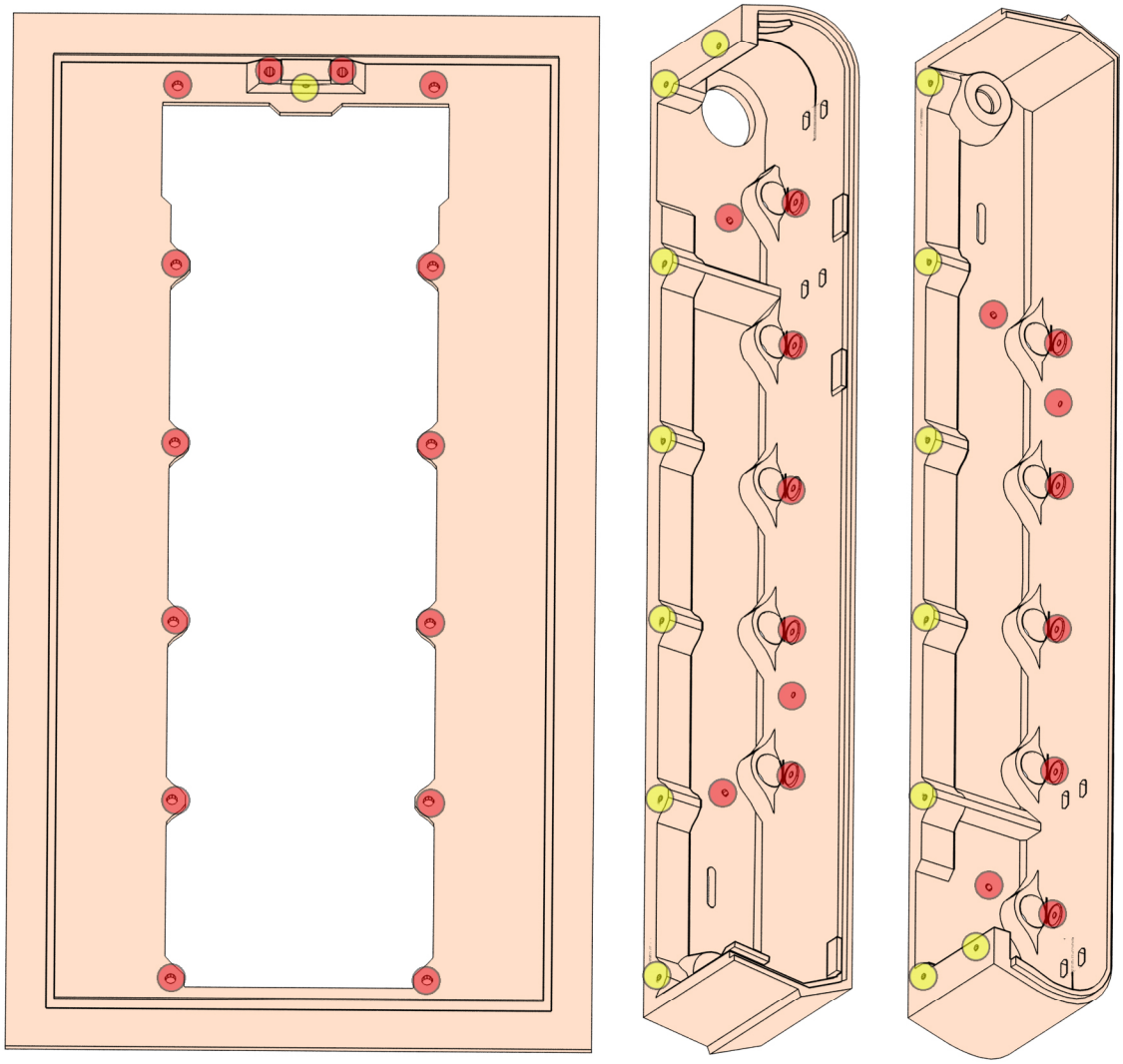
STEP 1 DRILL HOLES IN ALL PIECES (Next 6 pages)

LOWER HULL DRILL GUIDE

DRILL SIZE KEY

- 0.07”
- 5/64”
- 3/32”
- 1/8”
- 9/64”
- 3/16”
- 3mm
- 5mm



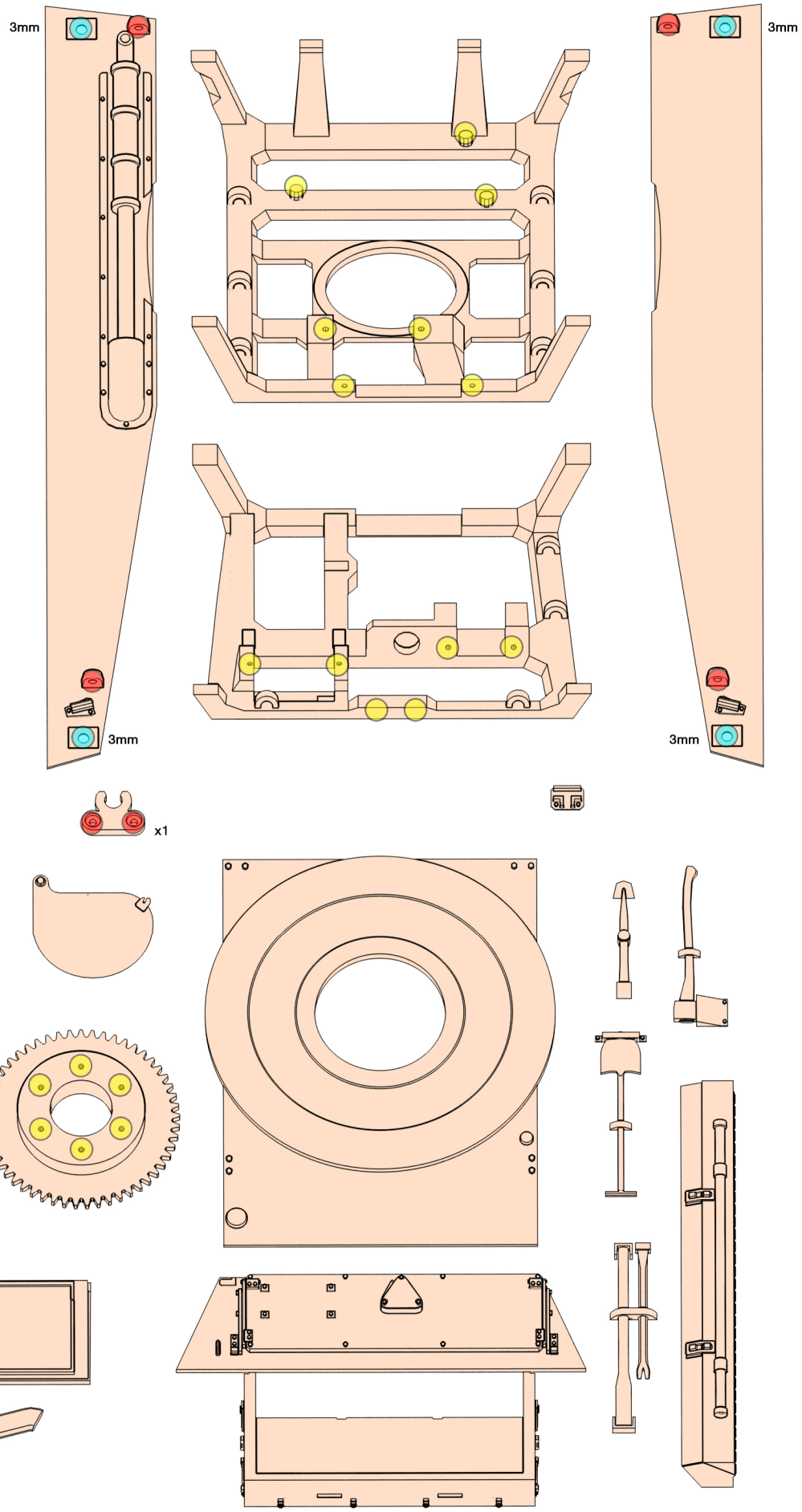


UPPER HULL DRILL GUIDE

FV101 / FV107 TANK KIT

DRILL SIZE KEY

- 0.07”
- 5/64”
- 3/32”
- 1/8”
- 9/64”
- 3/16”
- 3mm
- 5mm
- 7mm



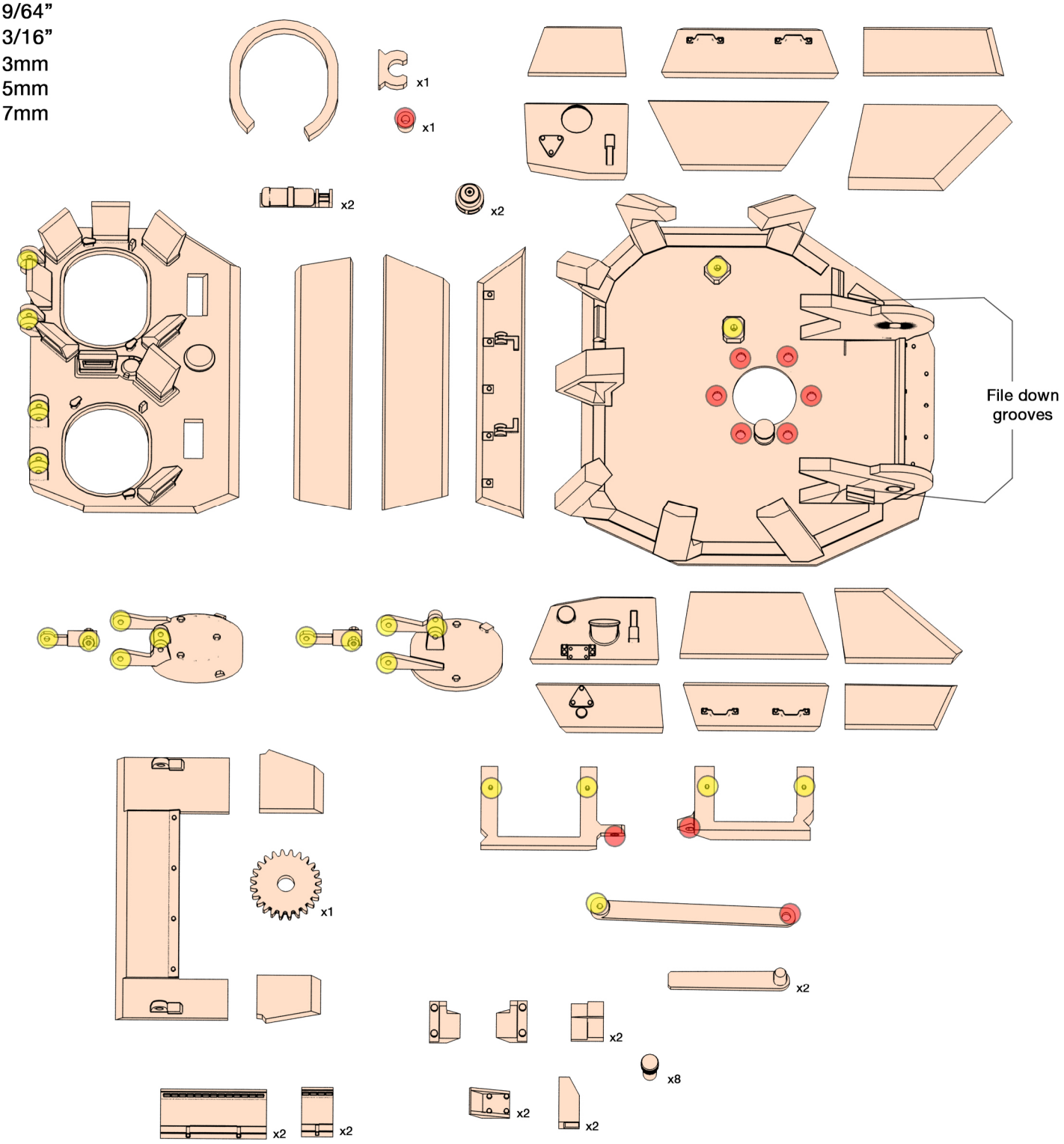
SPYKER WORKSHOP

TURRET DRILL GUIDE

FV101 / FV107 TANK KIT

DRILL SIZE KEY

- - 0.07”
- - 5/64”
- - 3/32”
- - 1/8”
- - 9/64”
- - 3/16”
- - 3mm
- - 5mm
- - 7mm



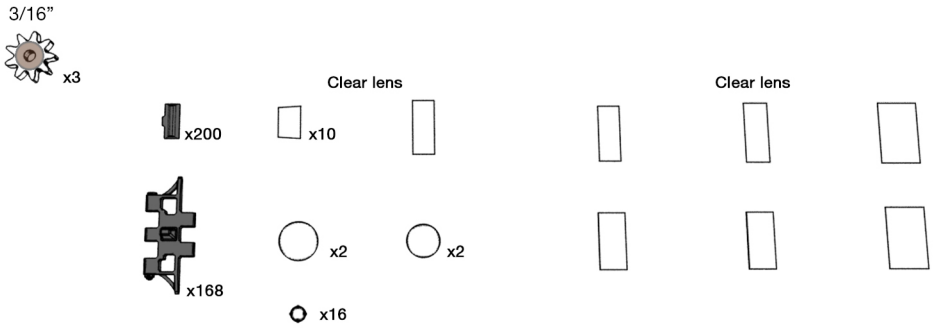
SPYKER WORKSHOP

DRILL GUIDE

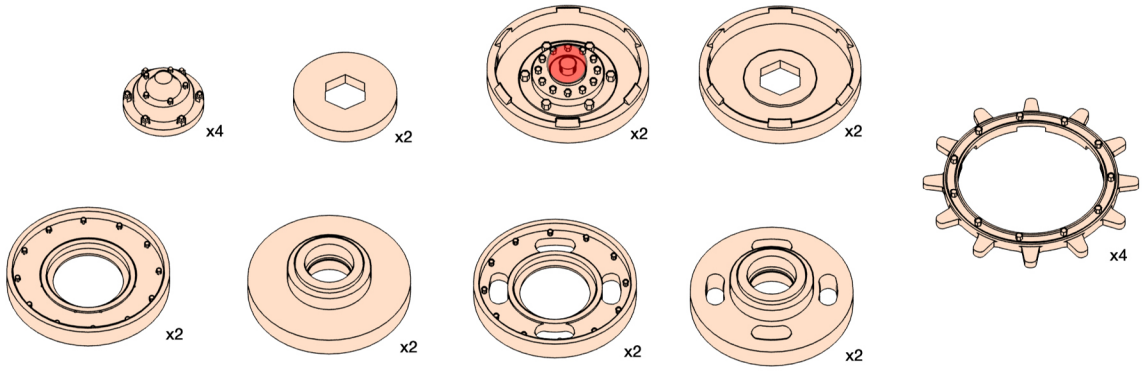
DRILL SIZE KEY

- - 0.07”
- - 5/64”
- - 3/32”
- - 1/8”
- - 9/64”
- - 3/16”
- - 3mm
- - 5mm
- - 7mm

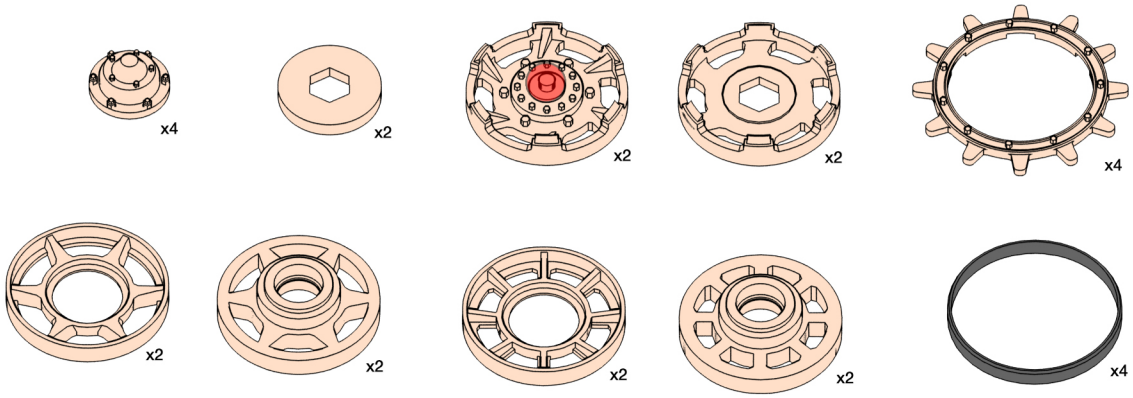
Misc



Wheels A



Wheels B

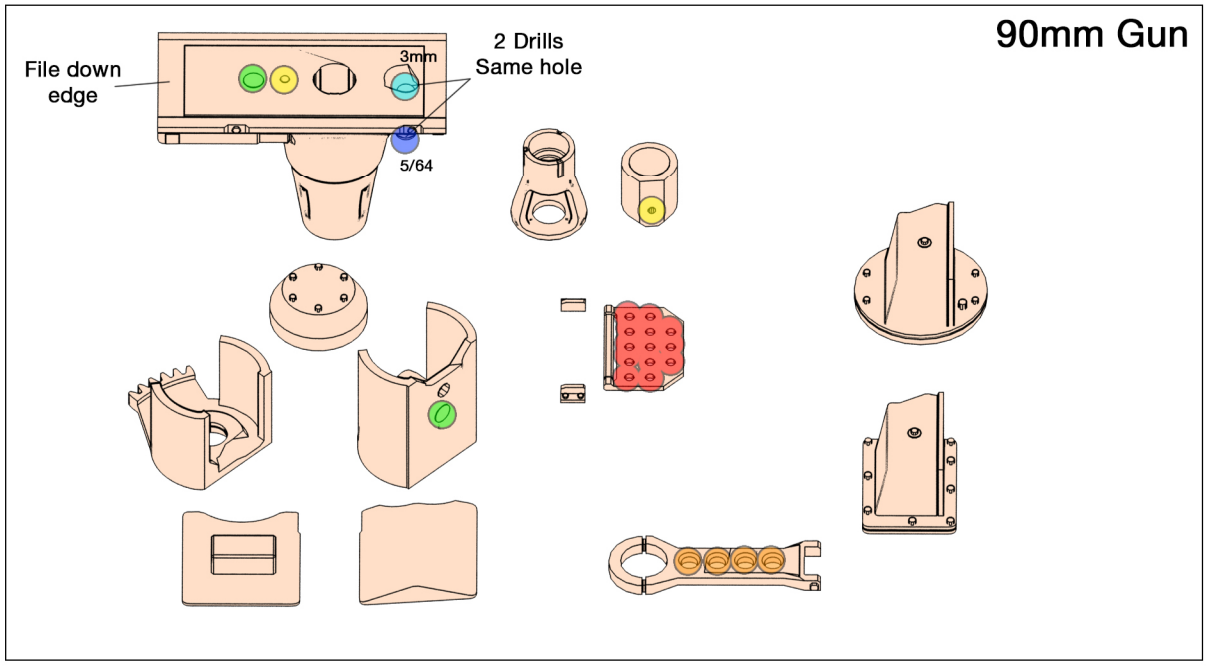


DRILL GUIDE

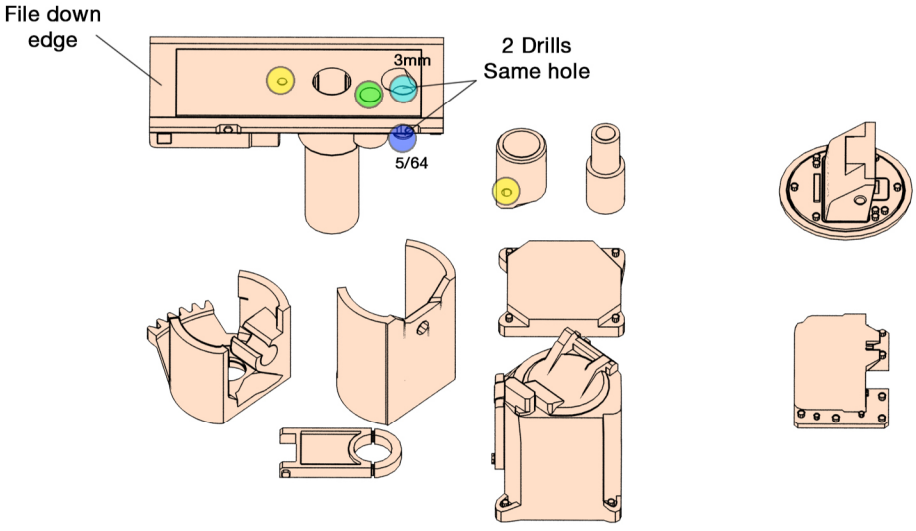
DRILL SIZE KEY

- 0.07”
- 5/64”
- 3/32”
- 1/8”
- 9/64”
- 3/16”
- 3mm
- 5mm
- 7mm

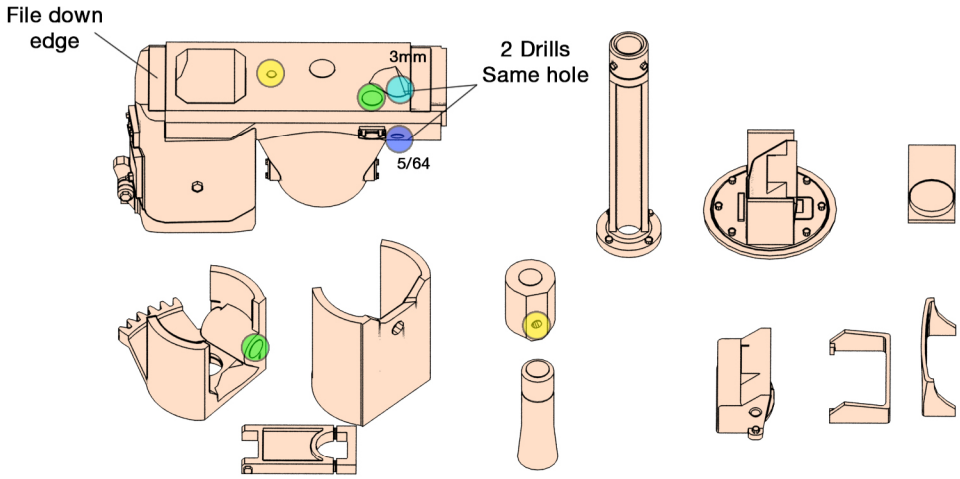
90mm Gun



76mm Gun



30mm Gun

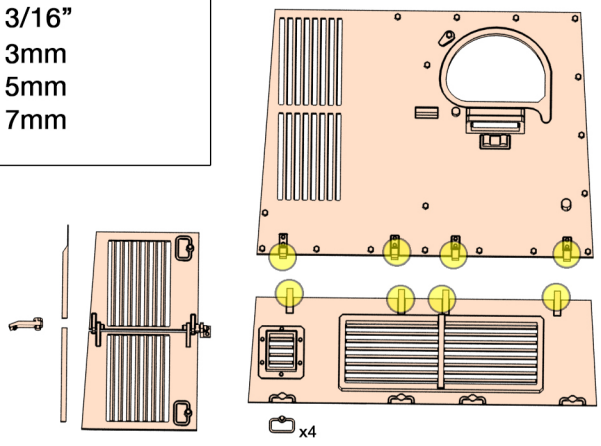


DRILL GUIDE

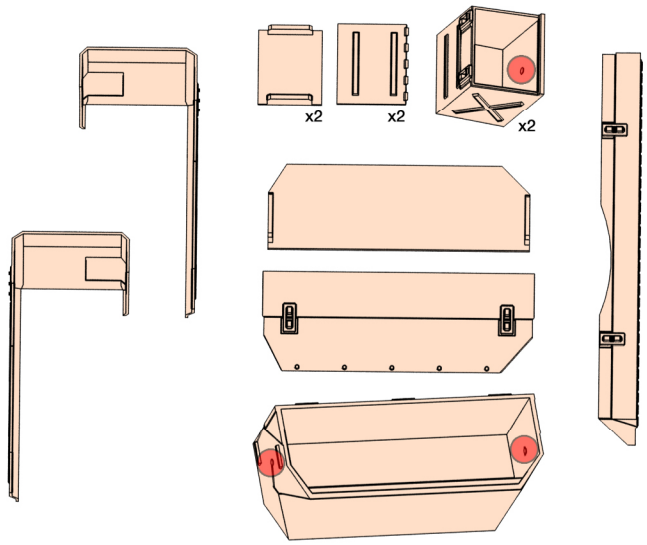
DRILL SIZE KEY

- 0.07”
- 5/64”
- 3/32”
- 1/8”
- 9/64”
- 3/16”
- 3mm
- 5mm
- 7mm

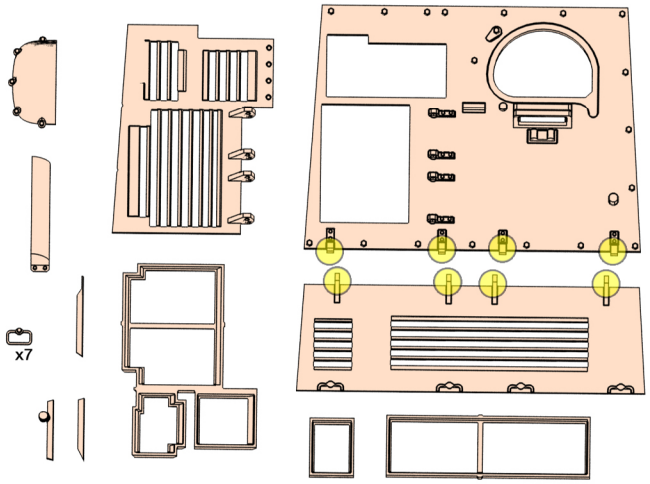
Deck A



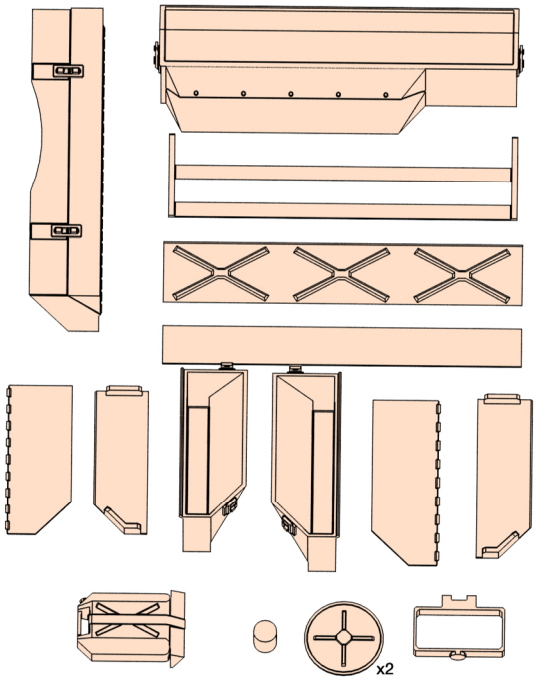
Storage A



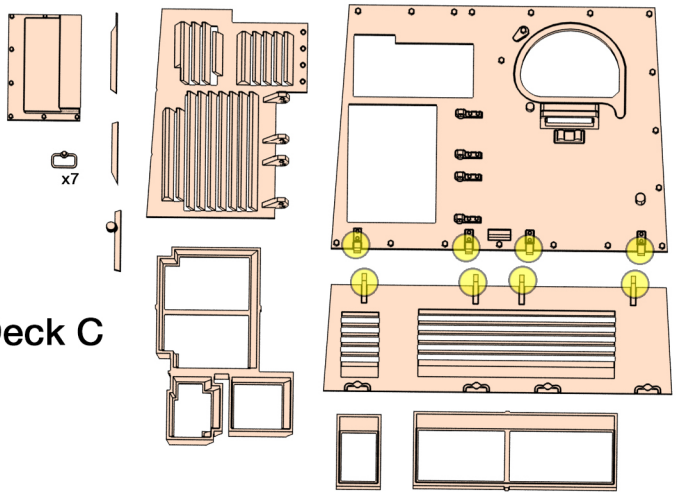
Deck B



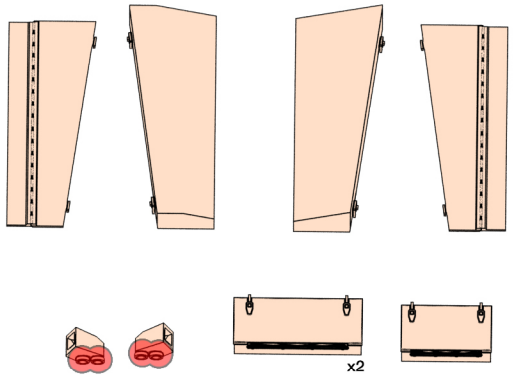
Storage B



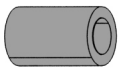
Deck C



Storage C

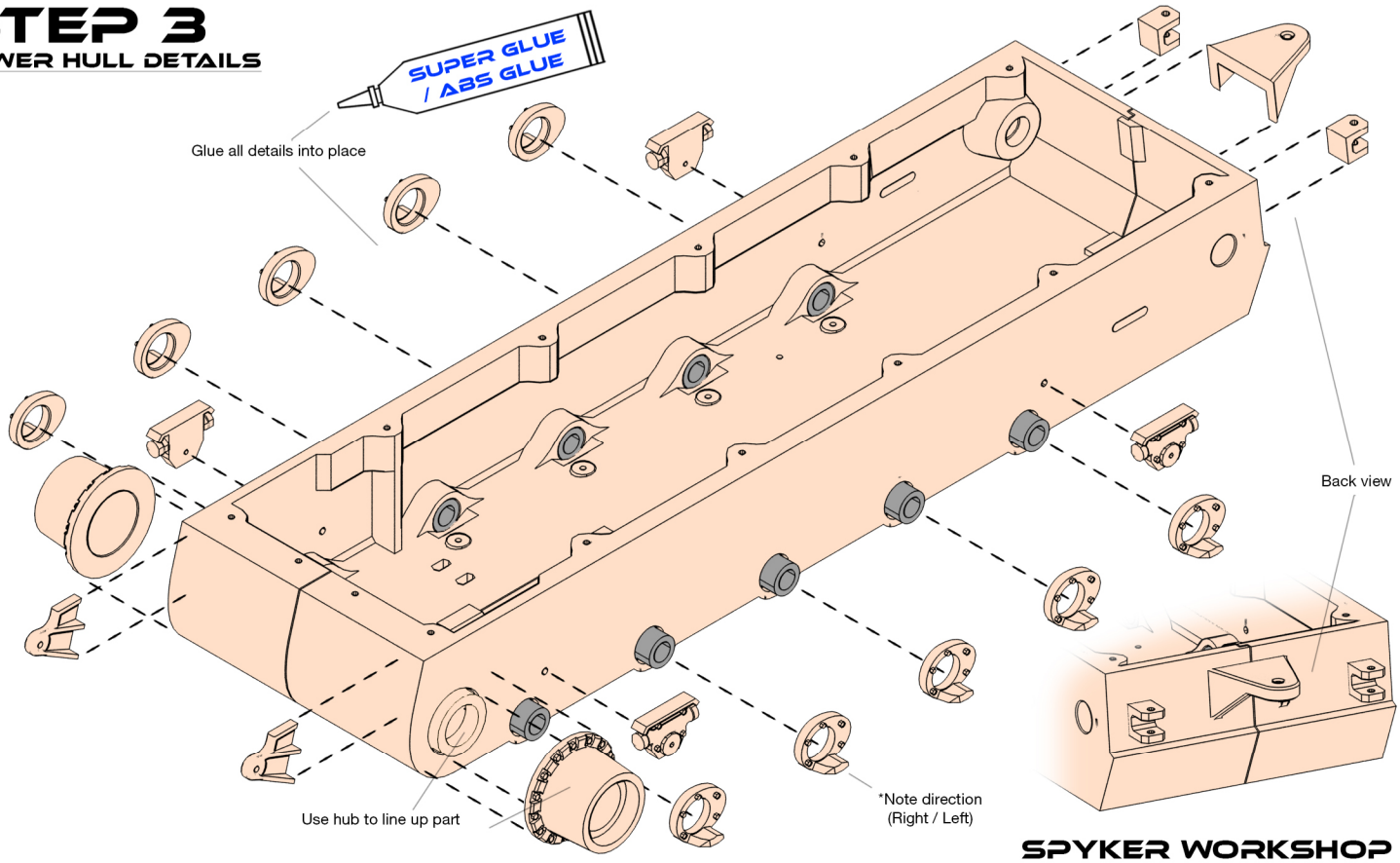


STEP 2
LOWER HULL



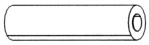
Bronze Bushing
3/16" ID x 5/16" ID x 1/2" L (10)

STEP 3
LOWER HULL DETAILS



STEP 4
SUSPENSION ARMS

!WEAR SAFETY GLASSES WHEN BENDING SPRING WIRE!



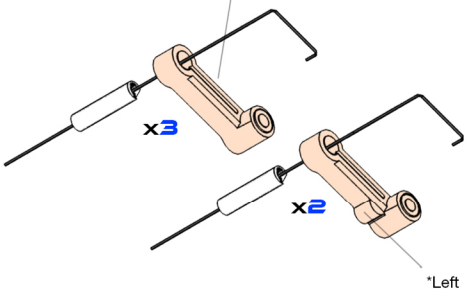
Nylon Spacer
3/16" OD x 3/4" L **(10)**

A

Cut small notch

*Notch faces slot

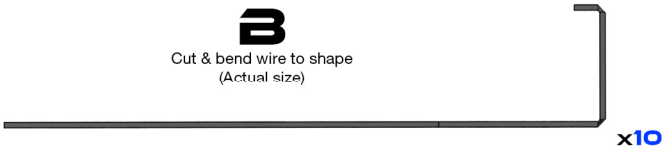
x10



0.033" Spring Wire 3 7/8" long (98mm)

B

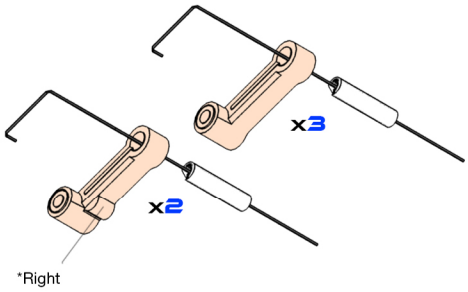
Cut & bend wire to shape
(Actual size)



x10

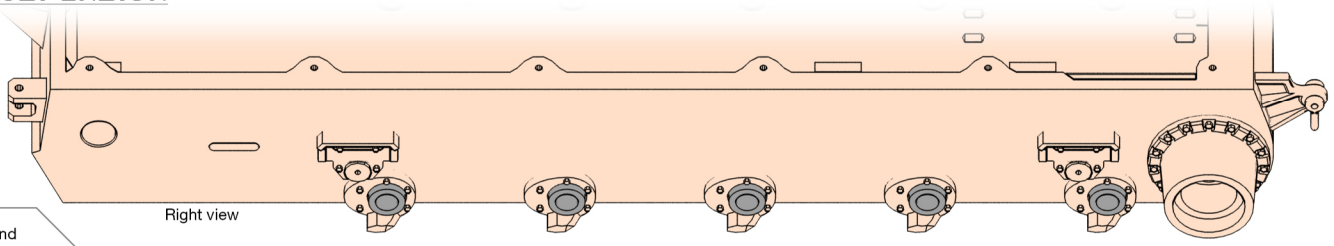
C

Press nylon spacer
into arm, insert rod



STEP 5
INSTALL SUSPENSION

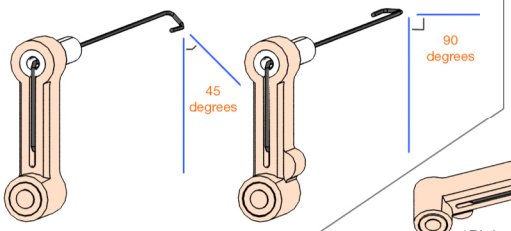
!WEAR SAFETY GLASSES WHEN BENDING SPRING WIRE!

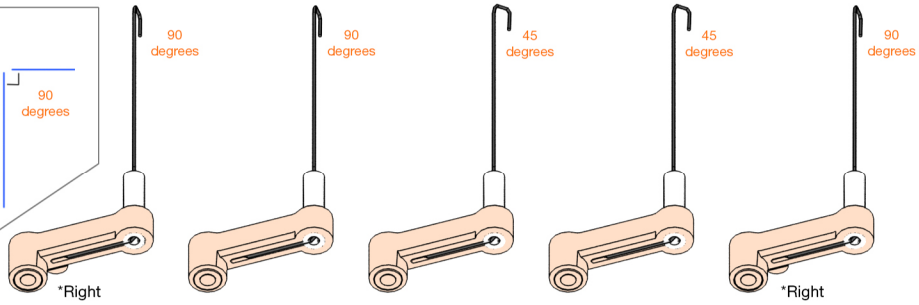


Right view

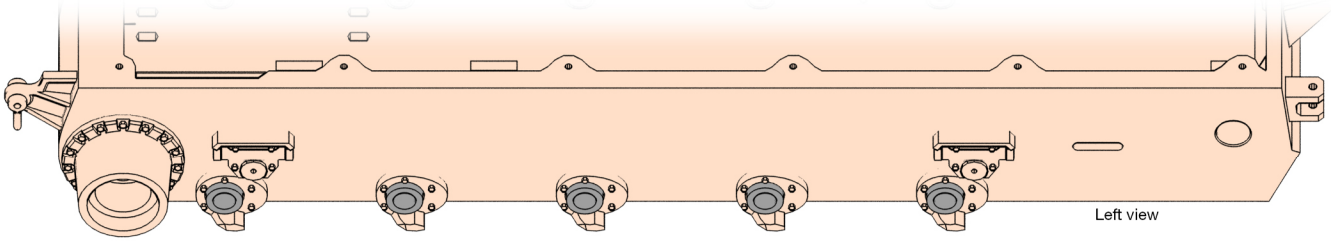
Bend loop on end

Each arm needs a
45 or 90 degree from arm

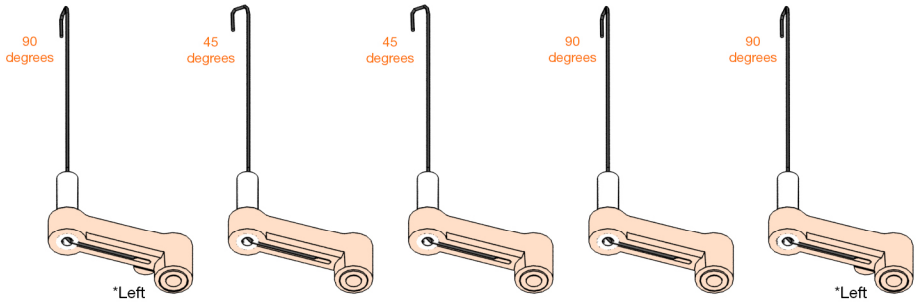




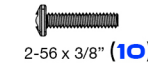
Loop
(actual size)



Left view



STEP 6
SCREW IN SUSPENSION

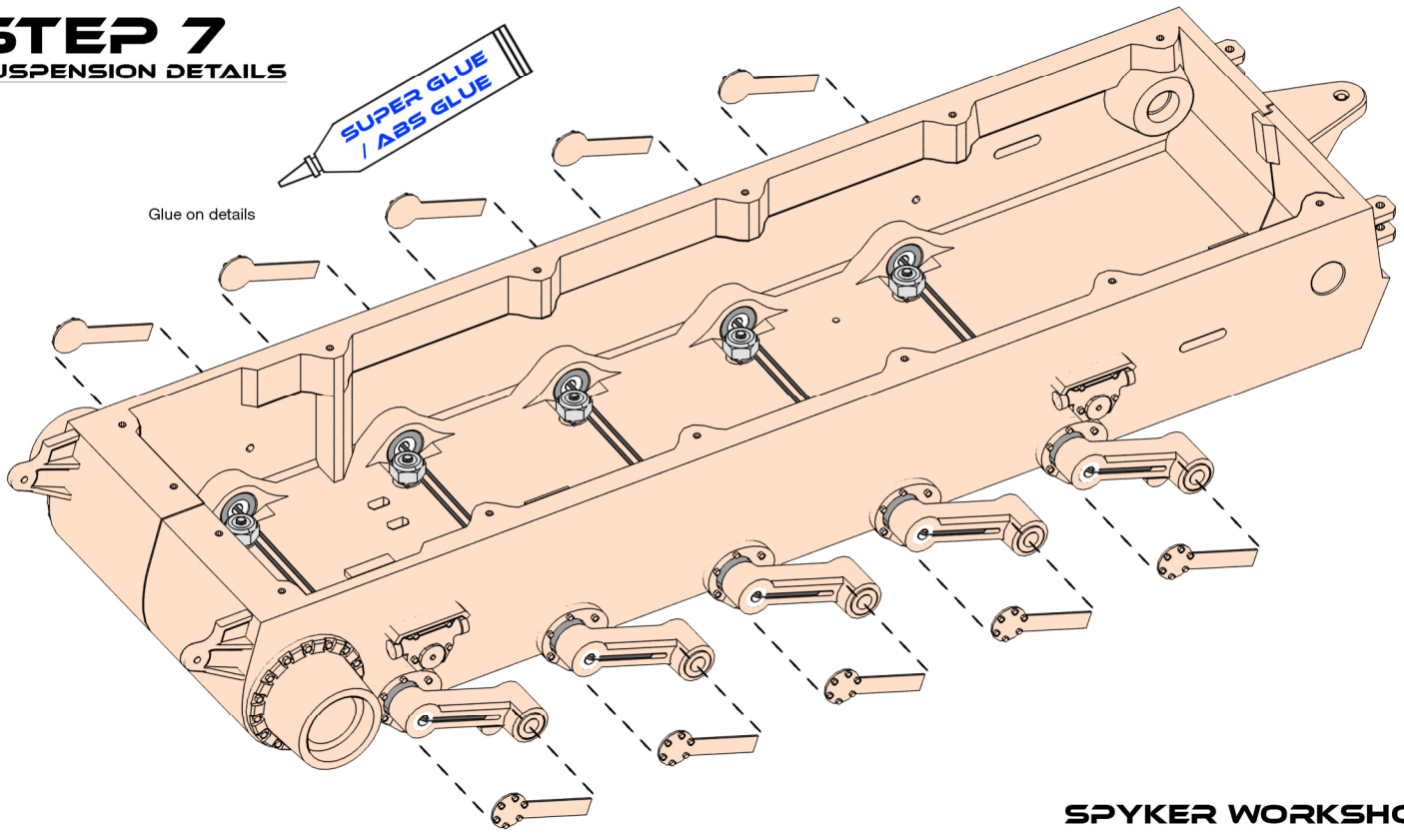


2-56 x 3/8" (10)

#2 washer (10)

2-56 locknut (10)

STEP 7
SUSPENSION DETAILS

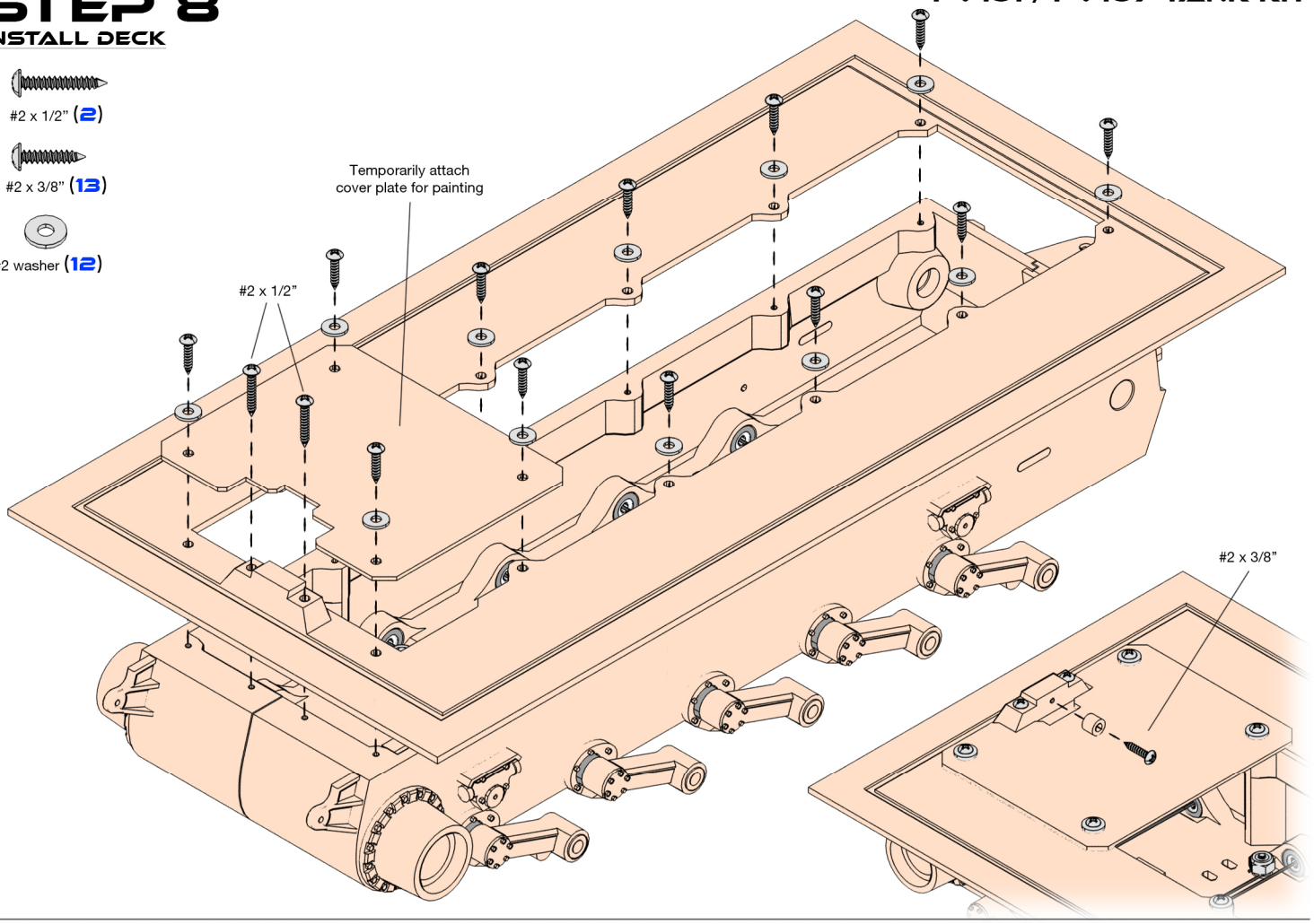


STEP 8
INSTALL DECK

#2 x 1/2" (2)

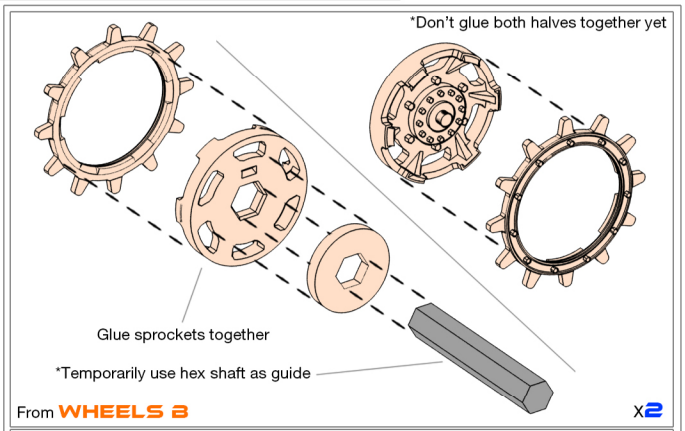
#2 x 3/8" (13)

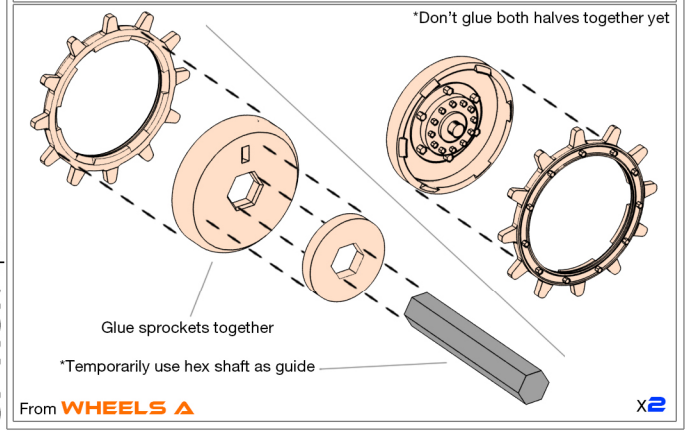
#2 washer (12)



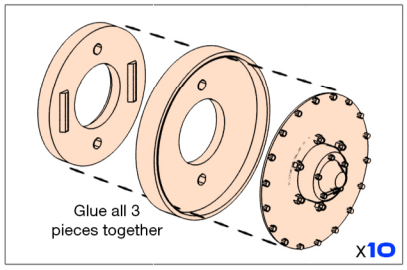
STEP 9
PREPARE WHEELS FOR PAINT

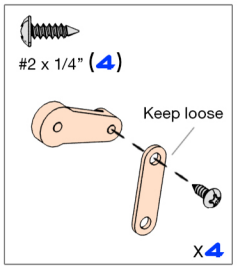
SUPER GLUE / ABS GLUE

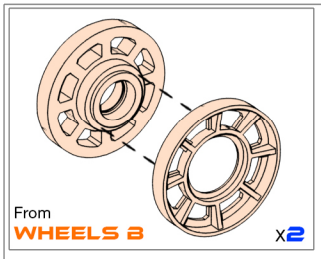


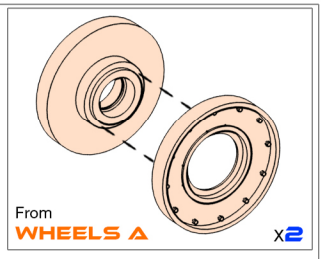


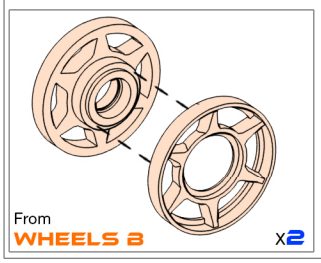
OPTION Sprockets

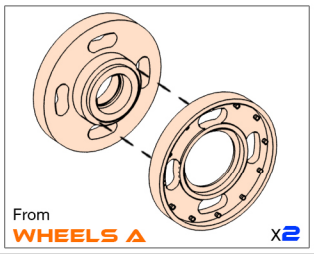








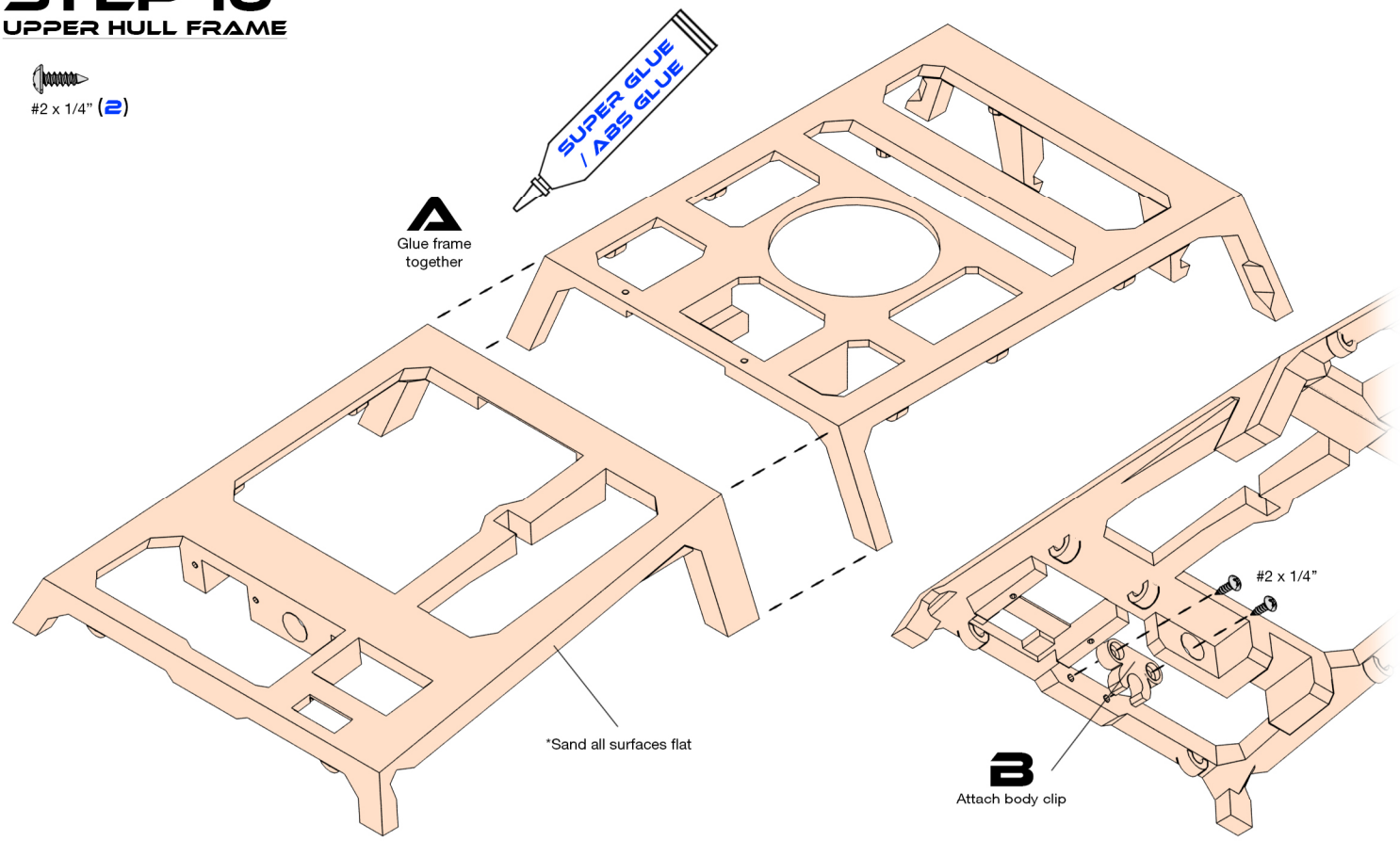




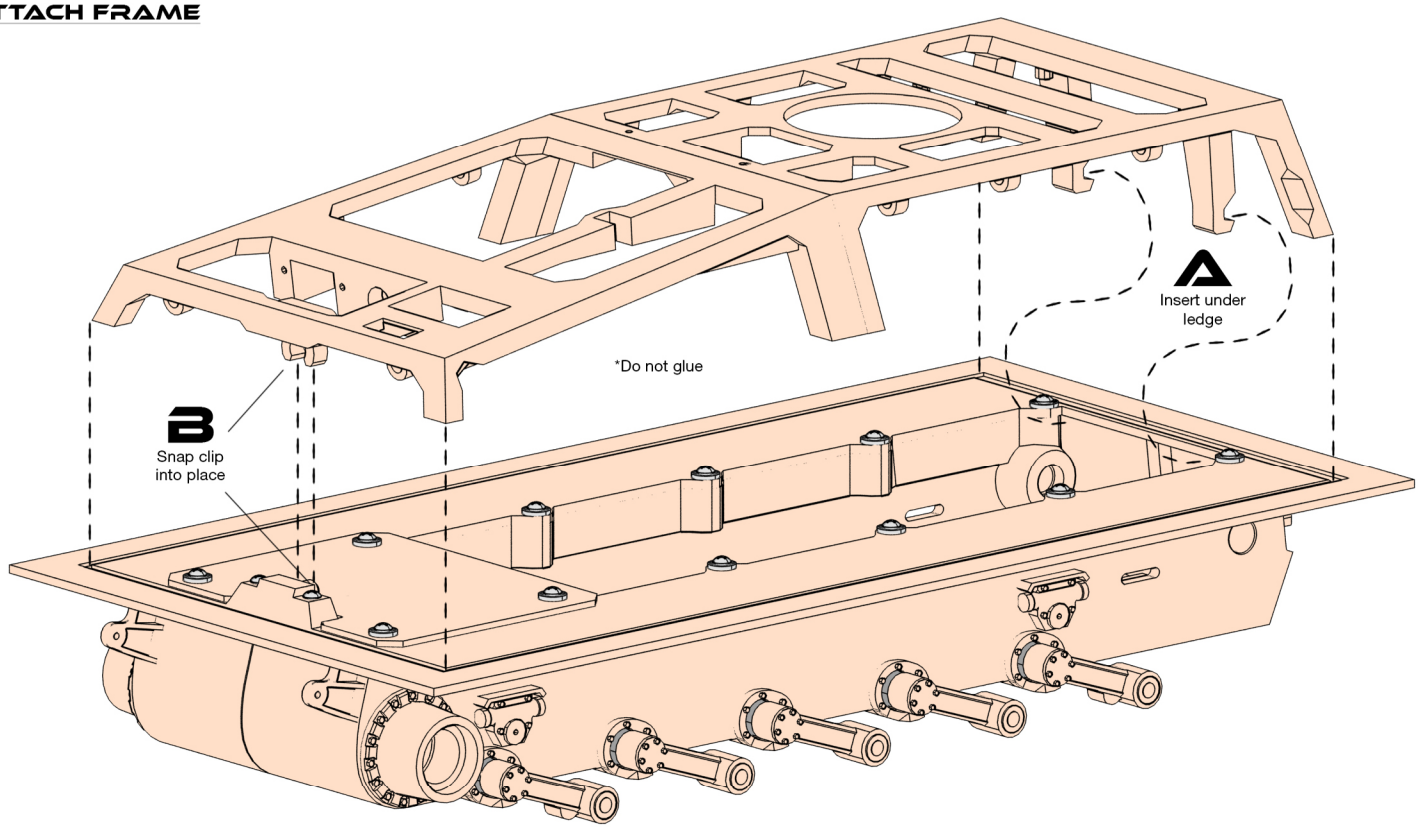
OPTION Idler wheels

STEP 10
UPPER HULL FRAME

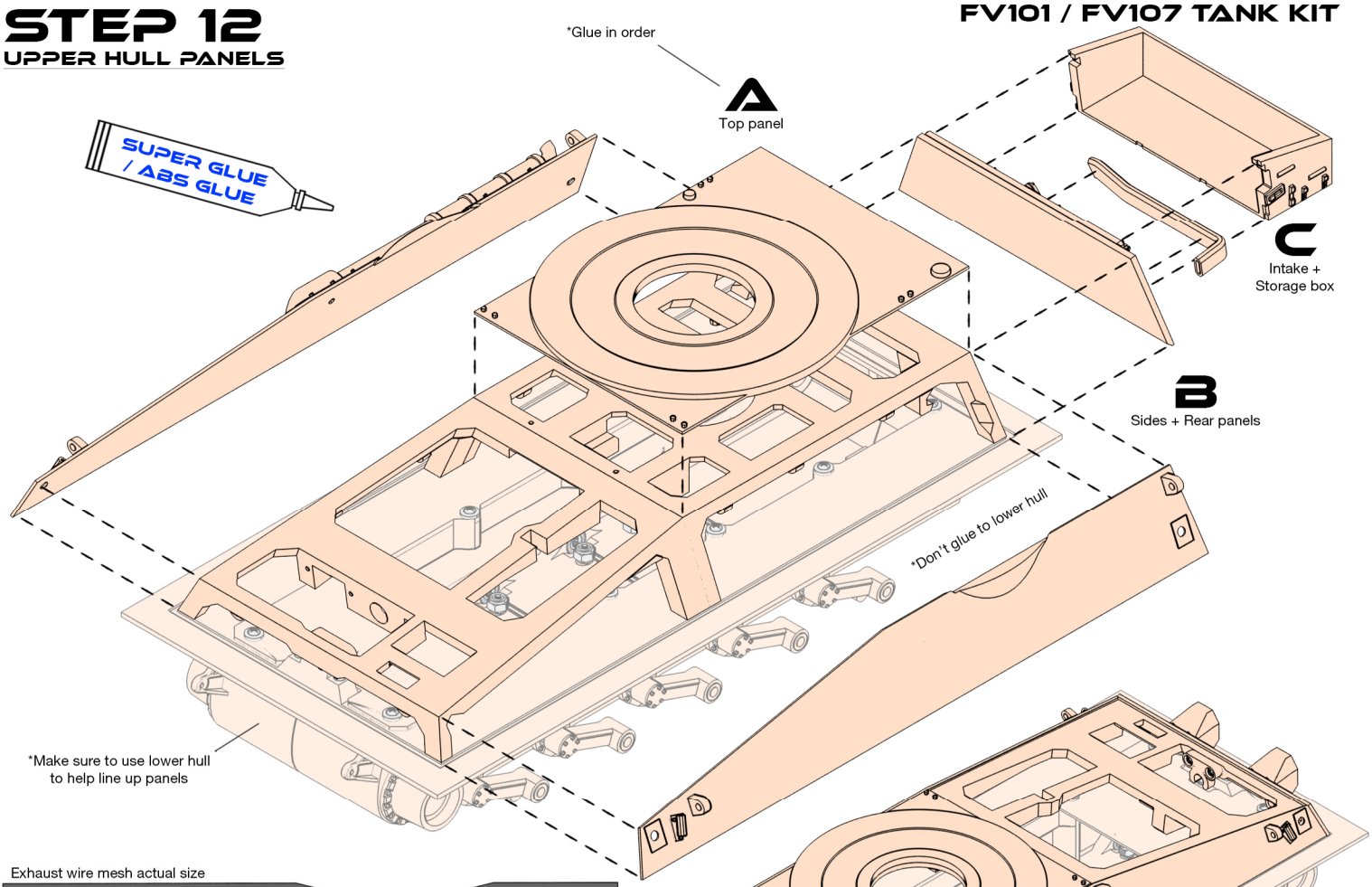
#2 x 1/4" (2)



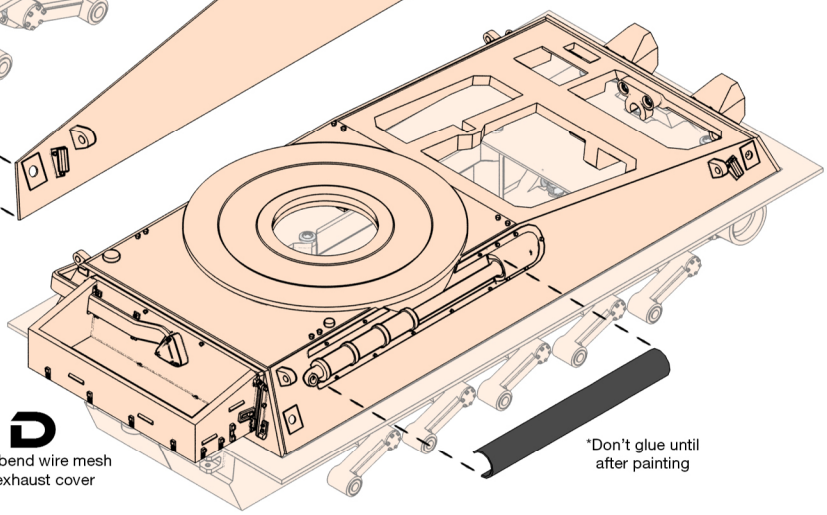
STEP 11
ATTACH FRAME



STEP 12
UPPER HULL PANELS



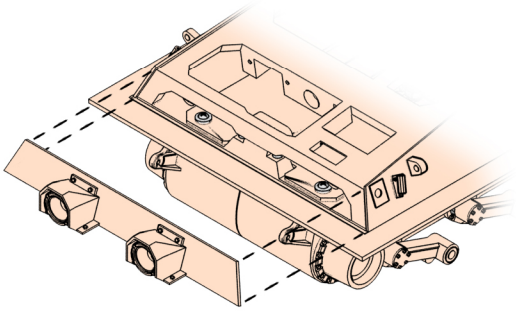
Exhaust wire mesh actual size



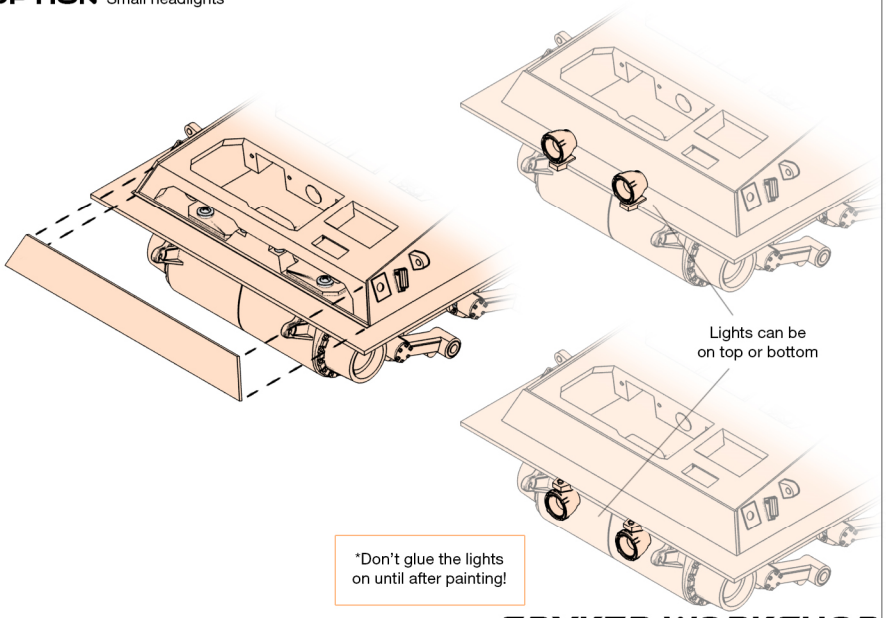
STEP 13
FRONT PANEL

SUPER GLUE / ABS GLUE

OPTION Large headlights



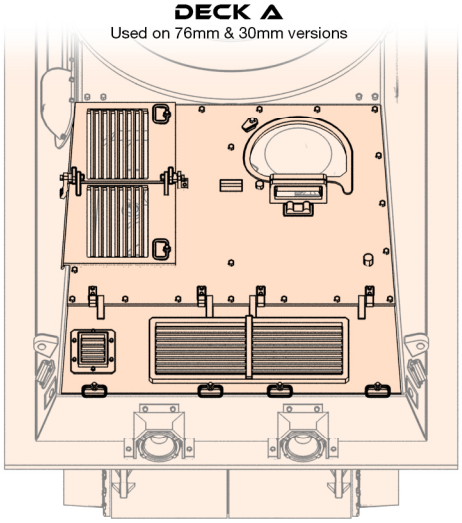
OPTION Small headlights



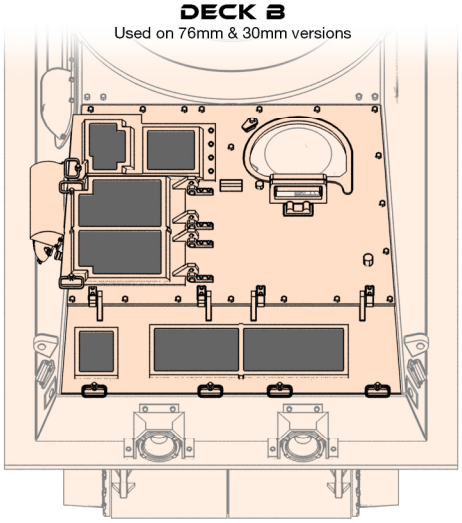
STEP 14
INSTALL DECK

OPTION

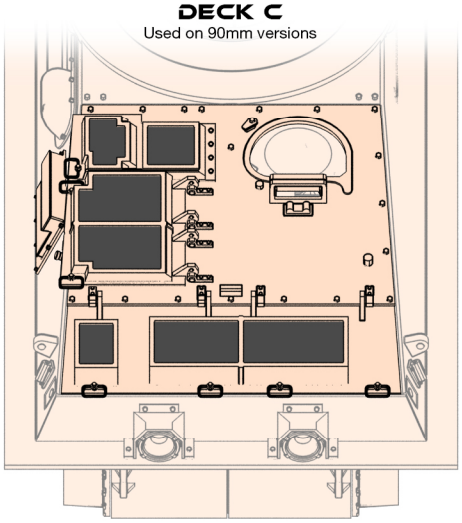
DECK A
Used on 76mm & 30mm versions

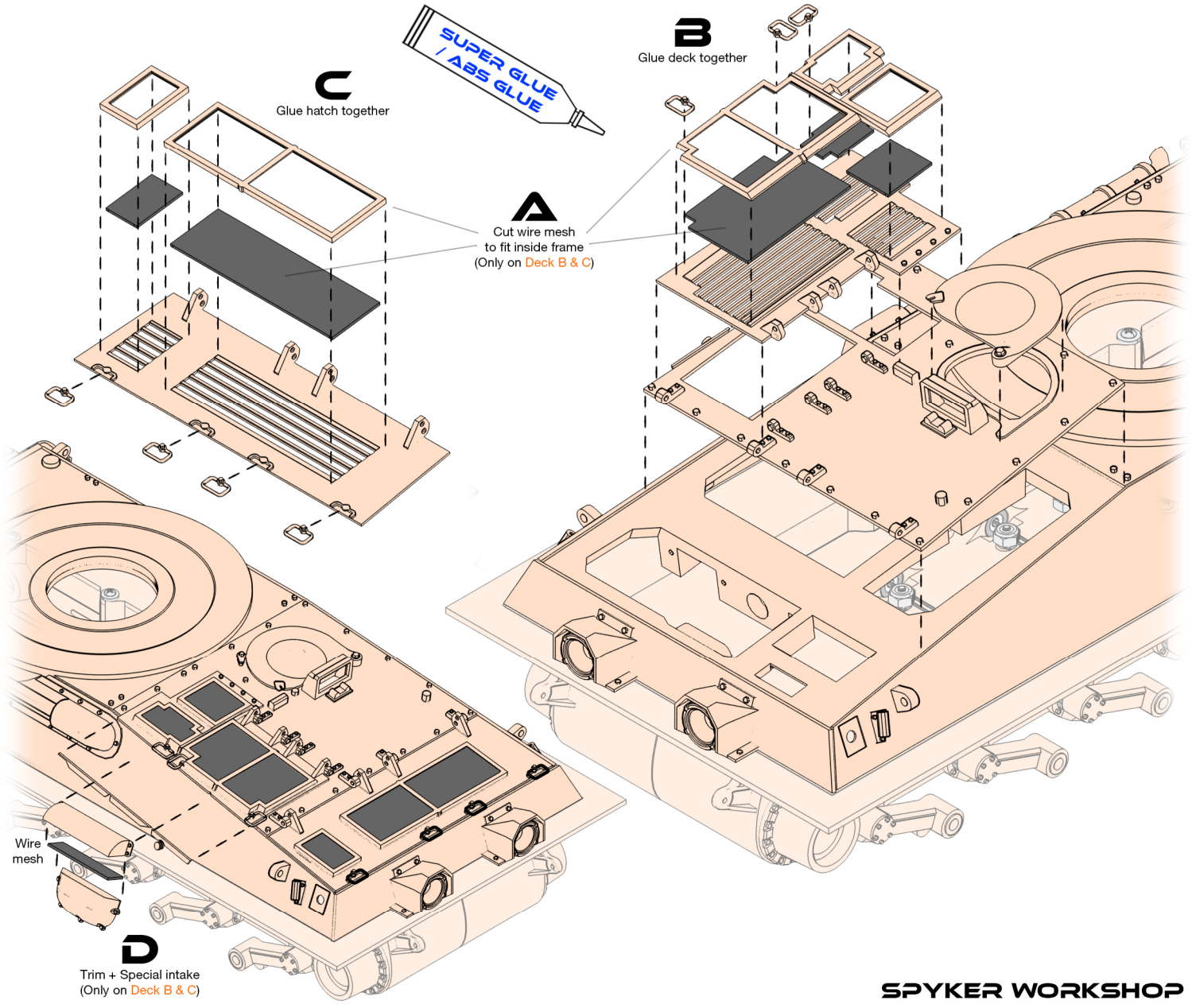


DECK B
Used on 76mm & 30mm versions

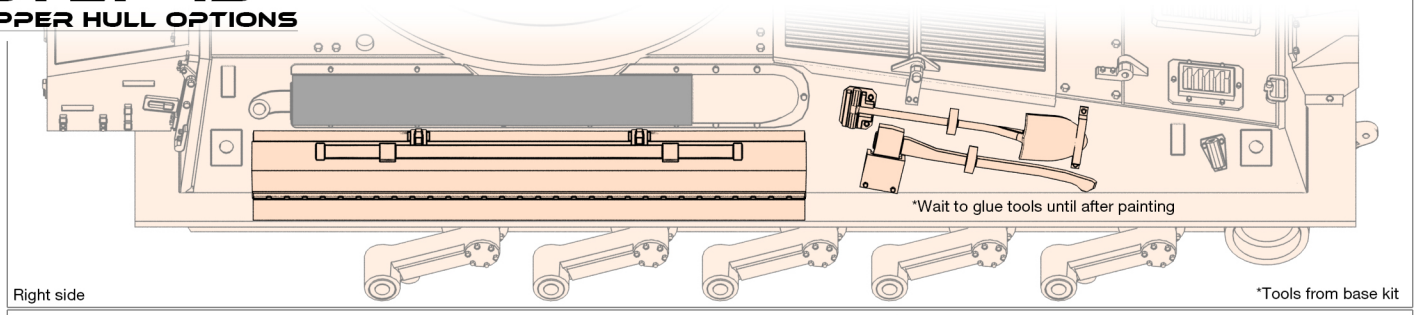


DECK C
Used on 90mm versions



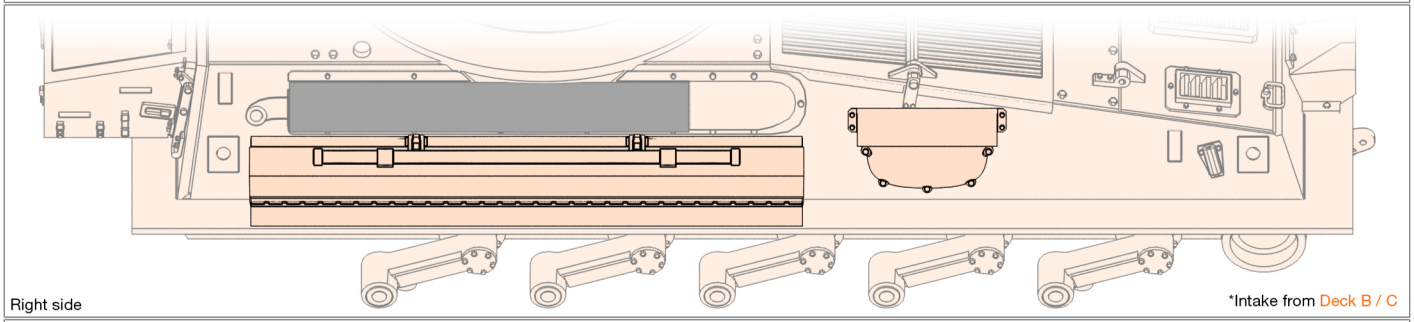


STEP 15
UPPER HULL OPTIONS



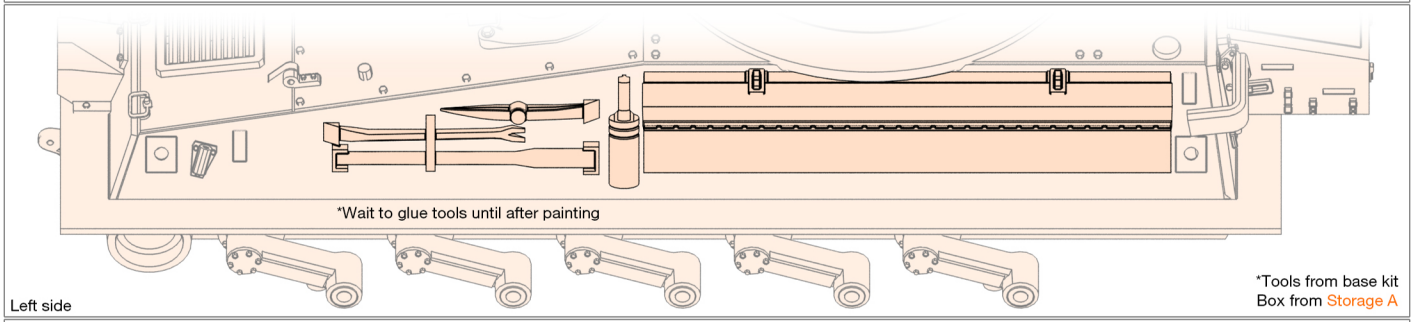
Right side

*Tools from base kit



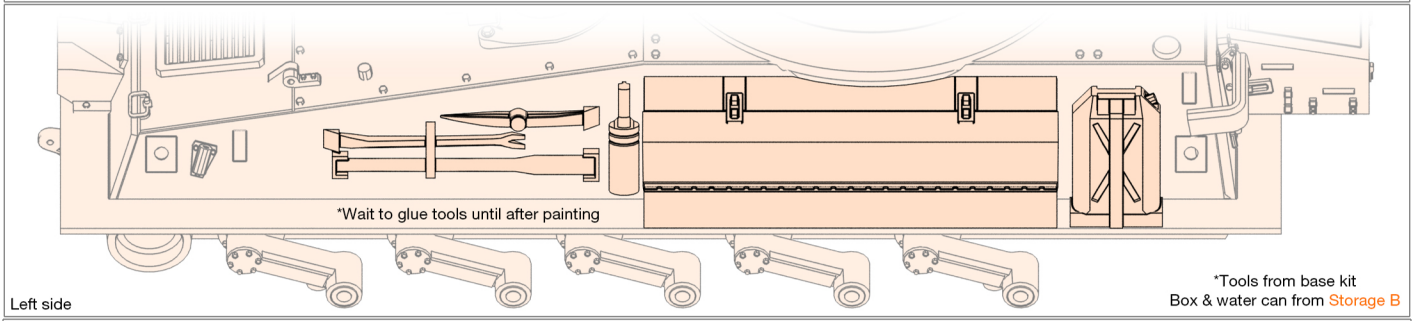
Right side

*Intake from Deck B / C



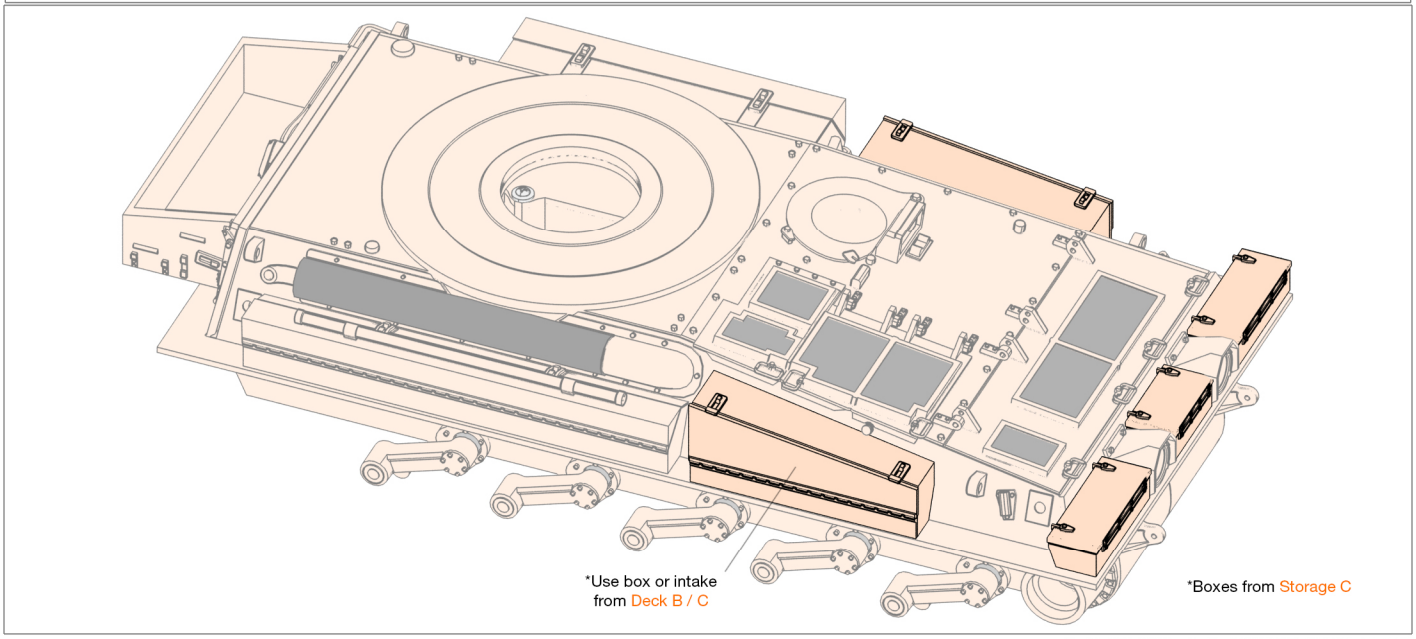
Left side

*Tools from base kit
Box from Storage A



Left side

*Tools from base kit
Box & water can from Storage B

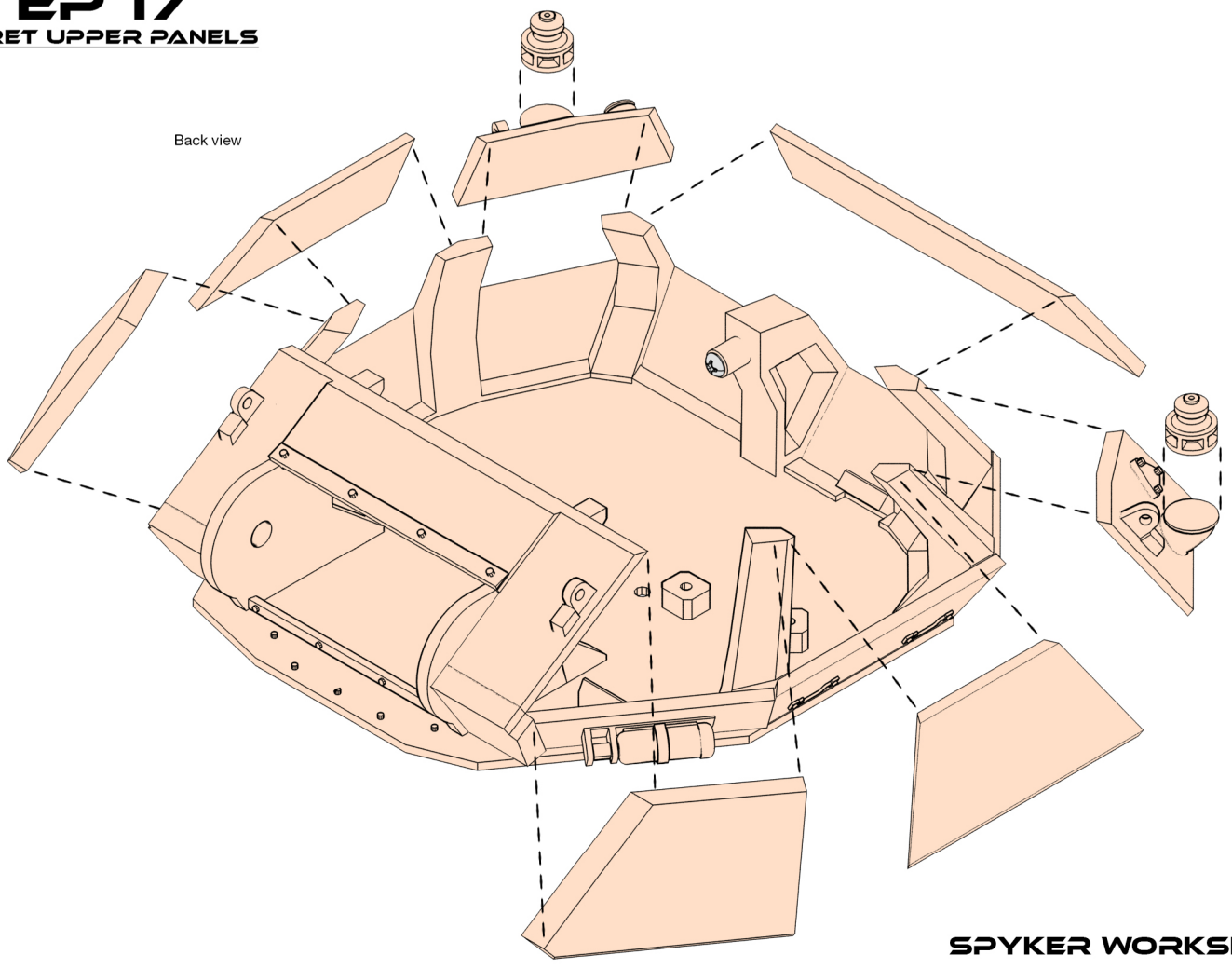


STEP 16
TURRET PANELS

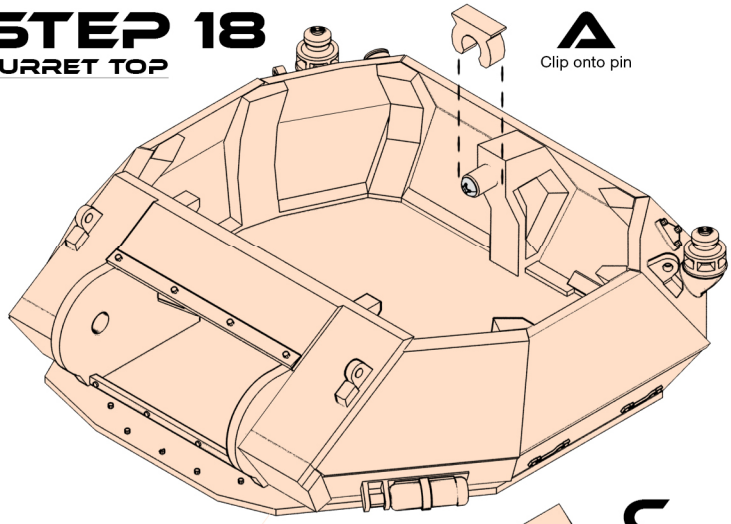
#2 x 1/2" (1)

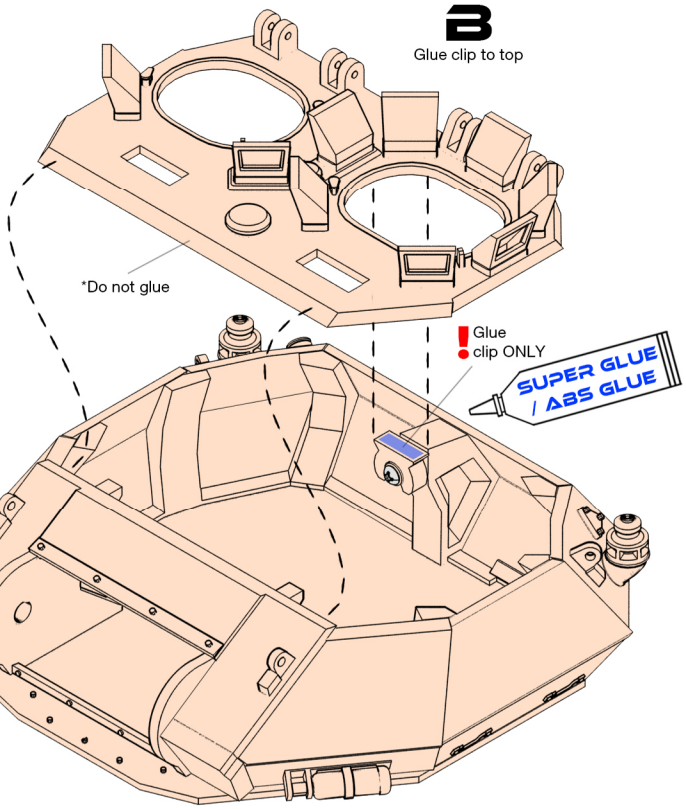
SUPER GLUE / ABS GLUE

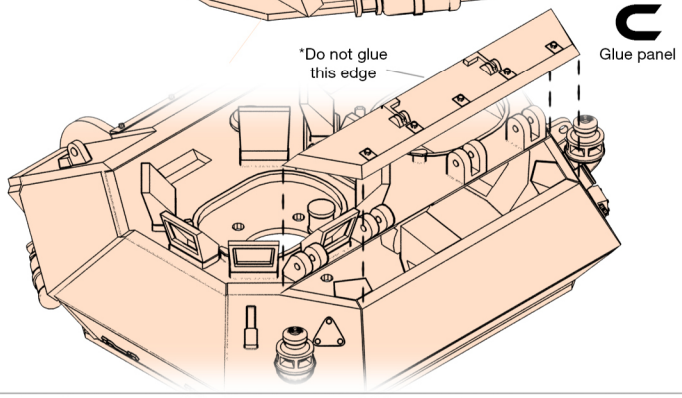
STEP 17
TURRET UPPER PANELS



STEP 18
TURRET TOP



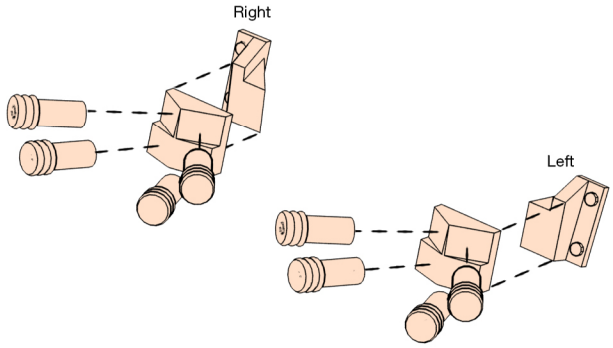


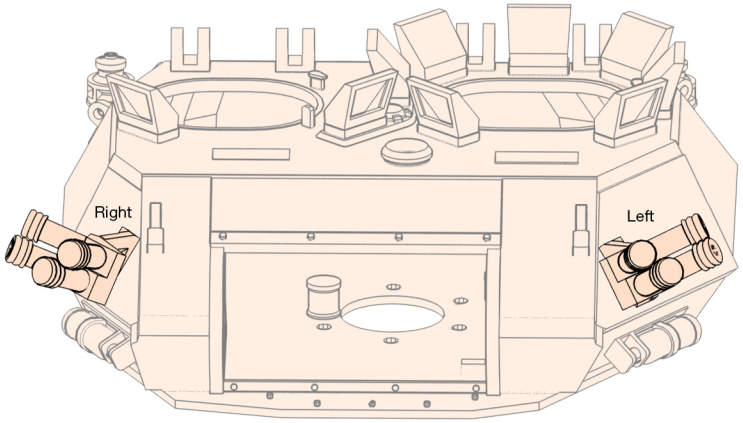


STEP 19
SMOKE GRENADES

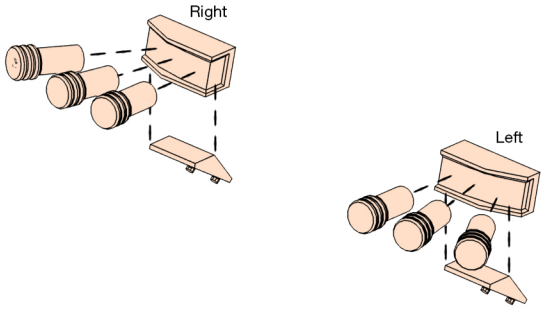
SUPER GLUE / ABS GLUE

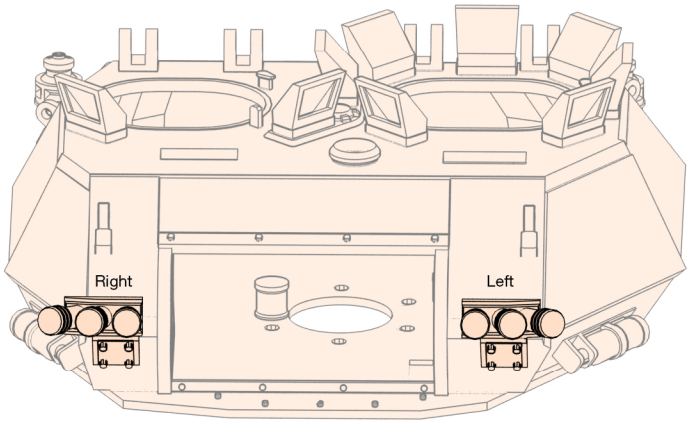
OPTION 4 grenades





OPTION 3 grenades

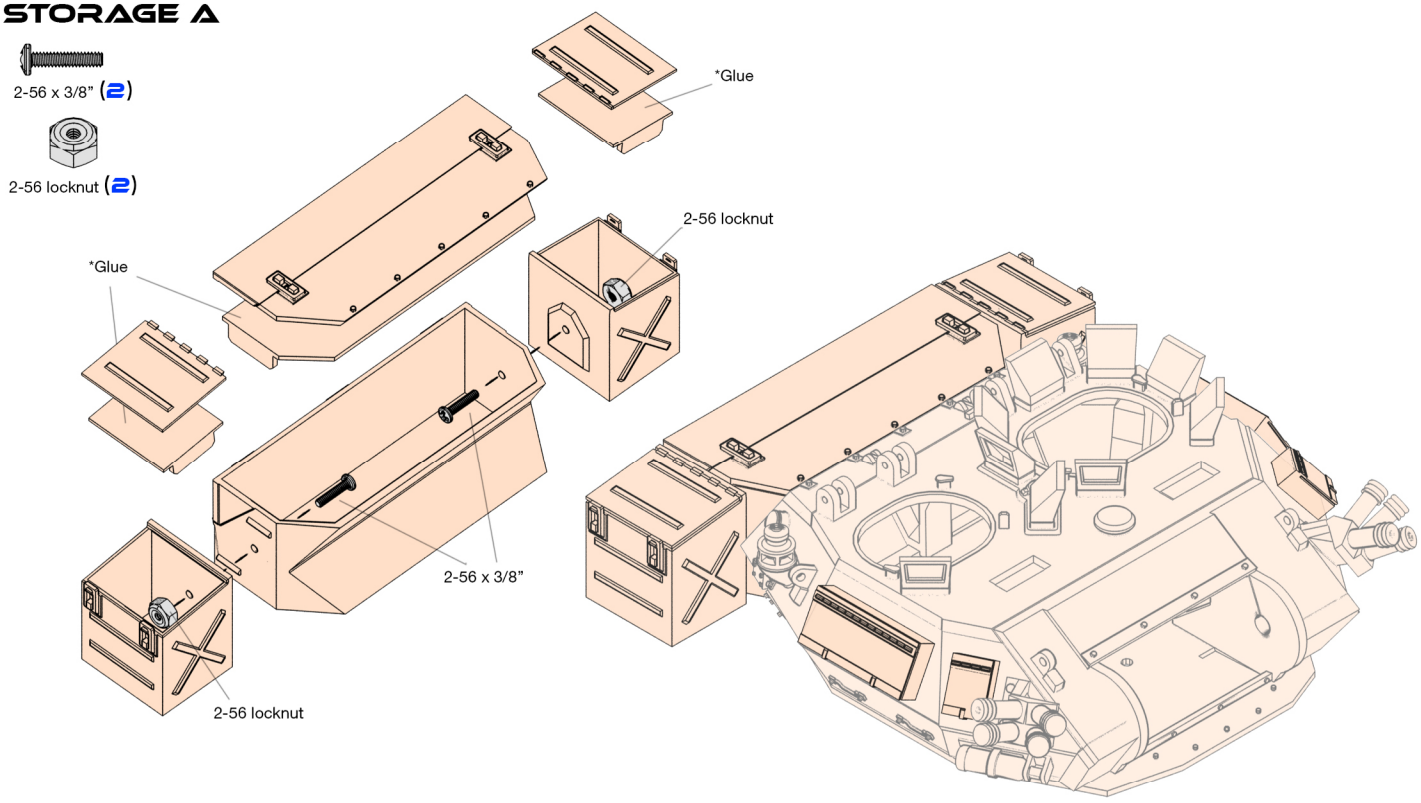




STEP 20
TURRET OPTIONS

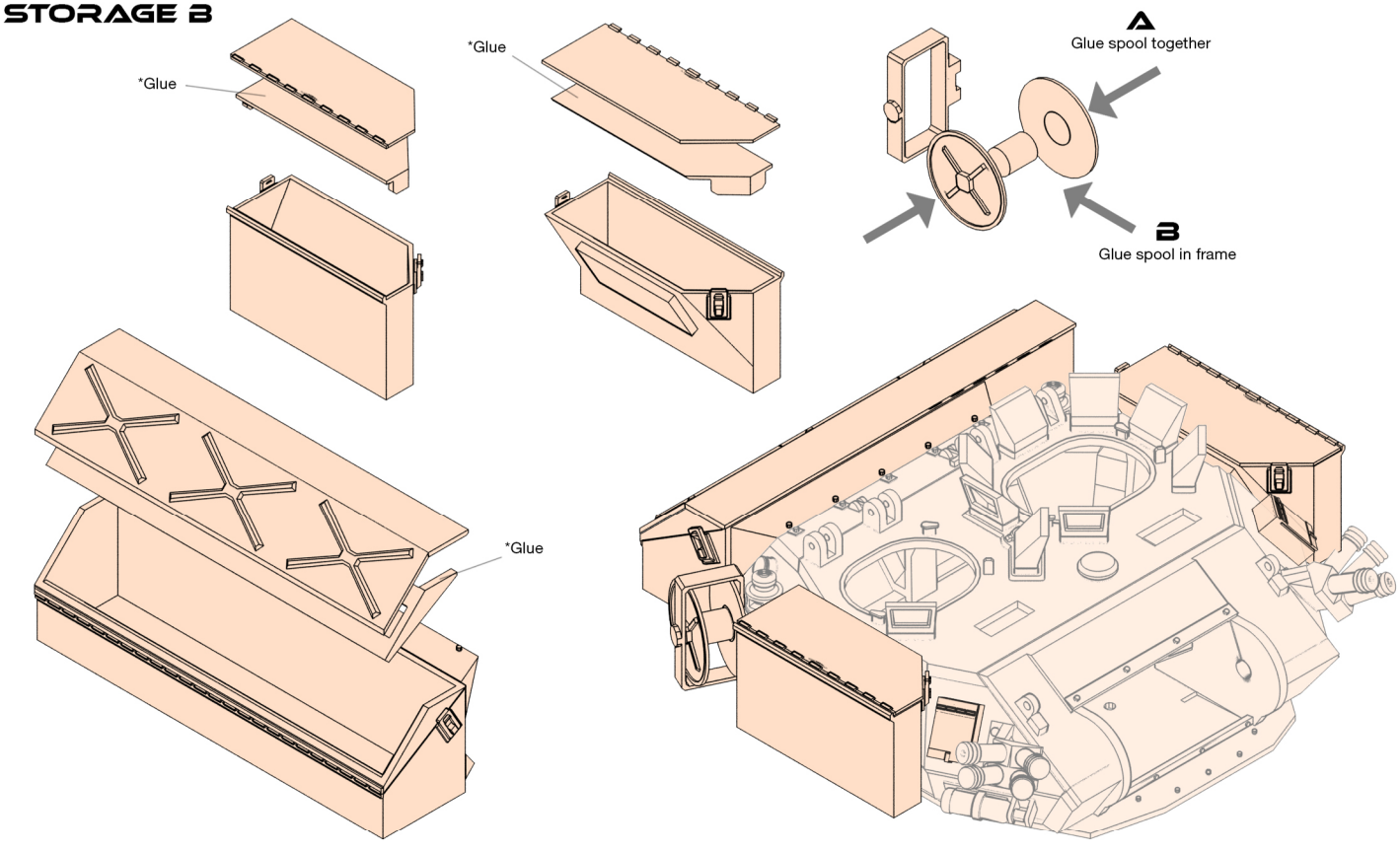
SUPER GLUE / ABS GLUE

STORAGE A



Buy both "Storage A" & "Storage B" to mix and match pieces.

STORAGE B

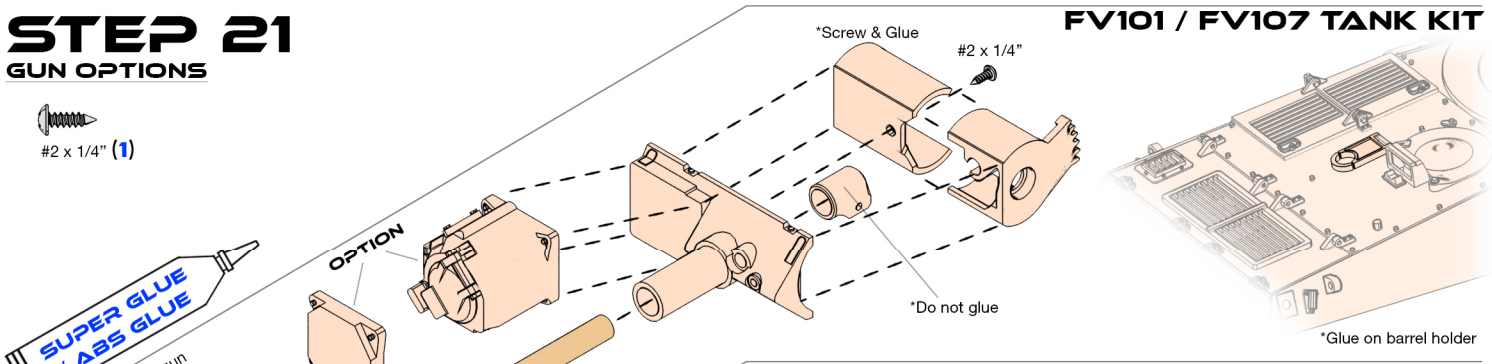


STEP 21
GUN OPTIONS

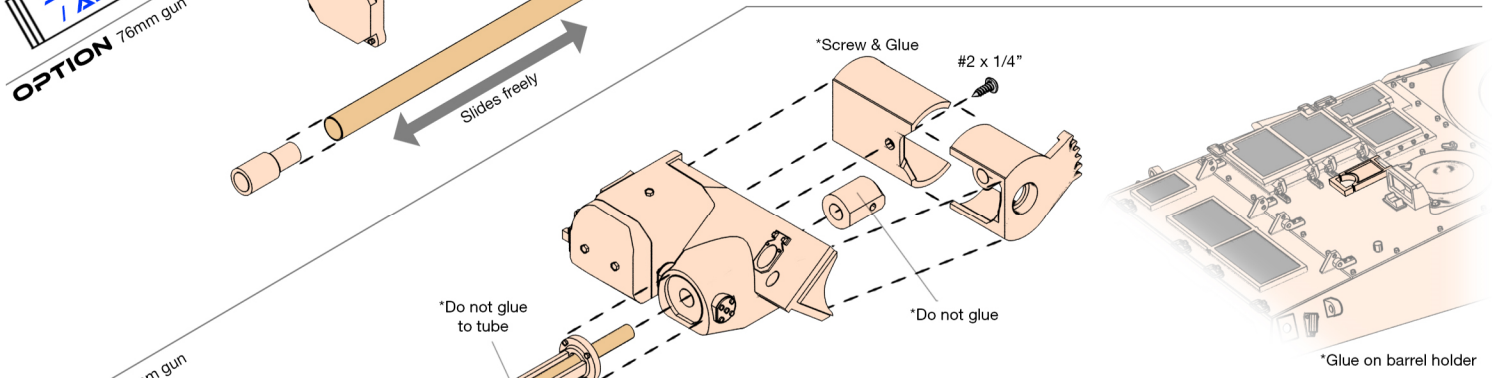
#2 x 1/4" (1)

SUPER GLUE / ABS GLUE

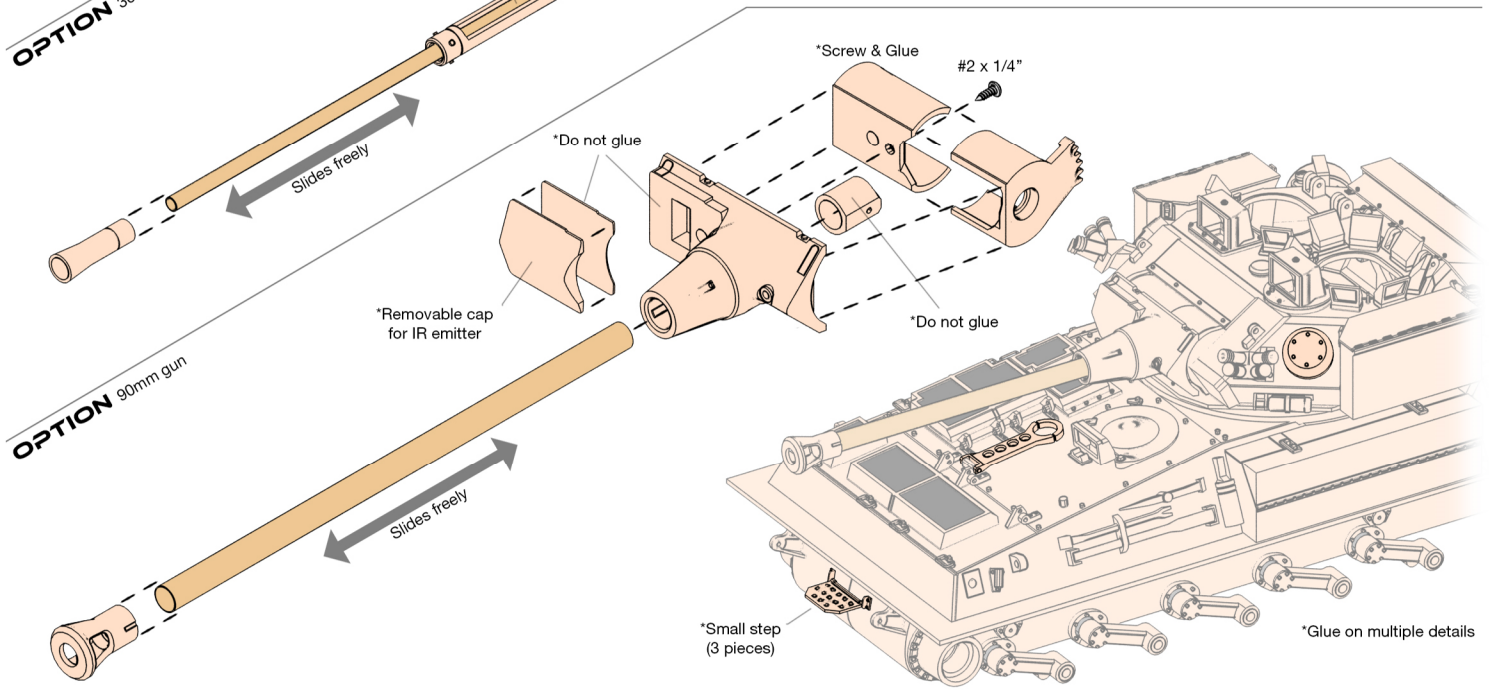
OPTION 76mm gun



OPTION 30mm gun

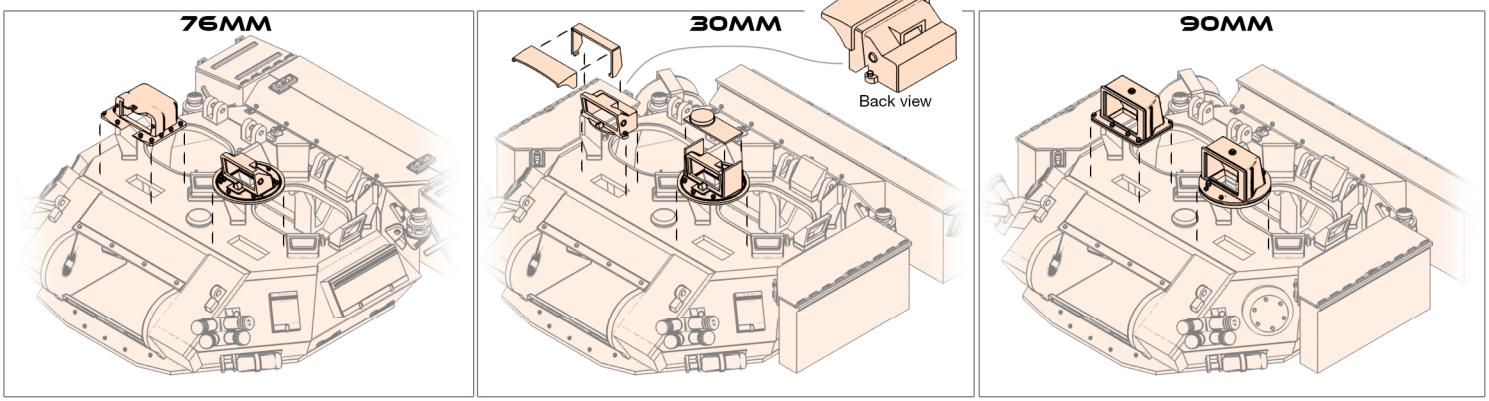


OPTION 90mm gun

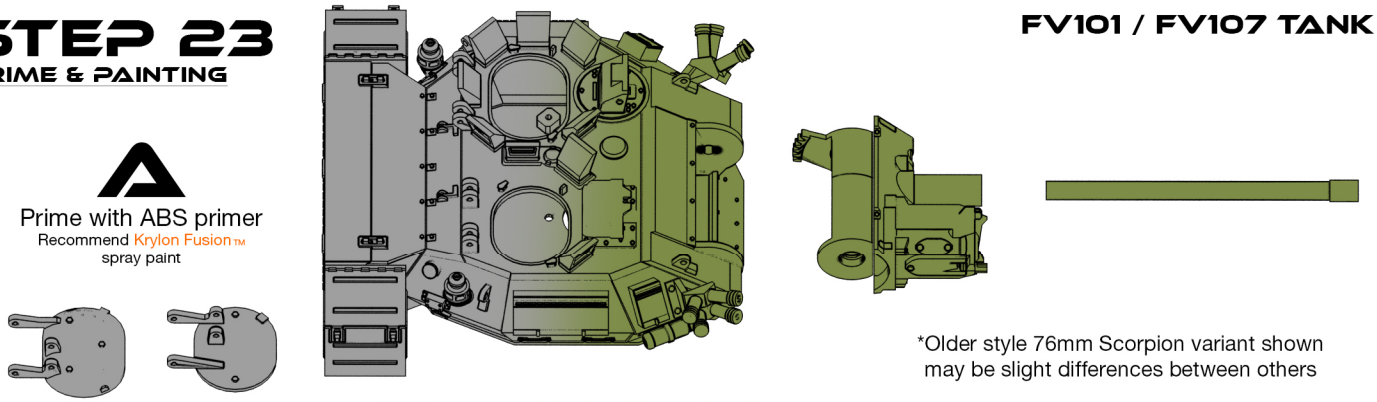


STEP 22
VIEWPORTS

SUPER GLUE / ABS GLUE



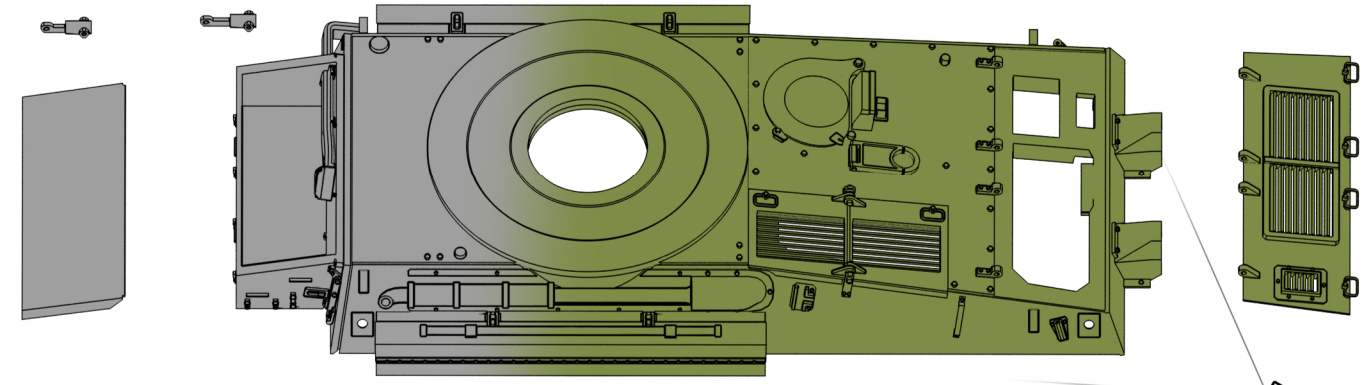
STEP 23
PRIME & PAINTING

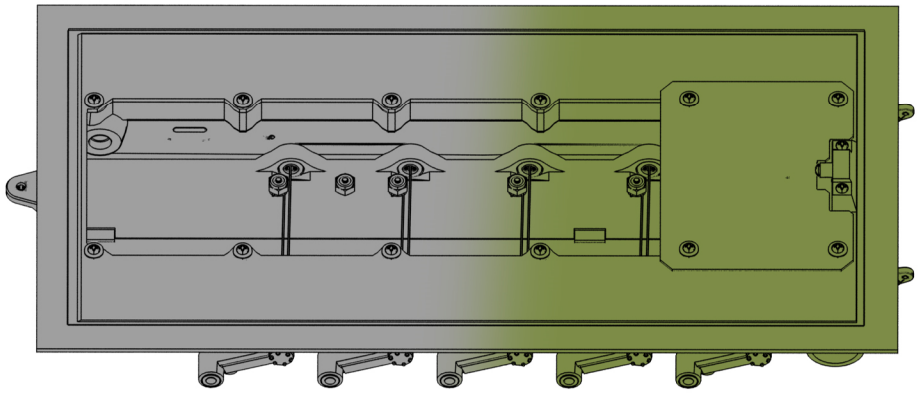


A

Prime with ABS primer
Recommend Krylon Fusion™
spray paint

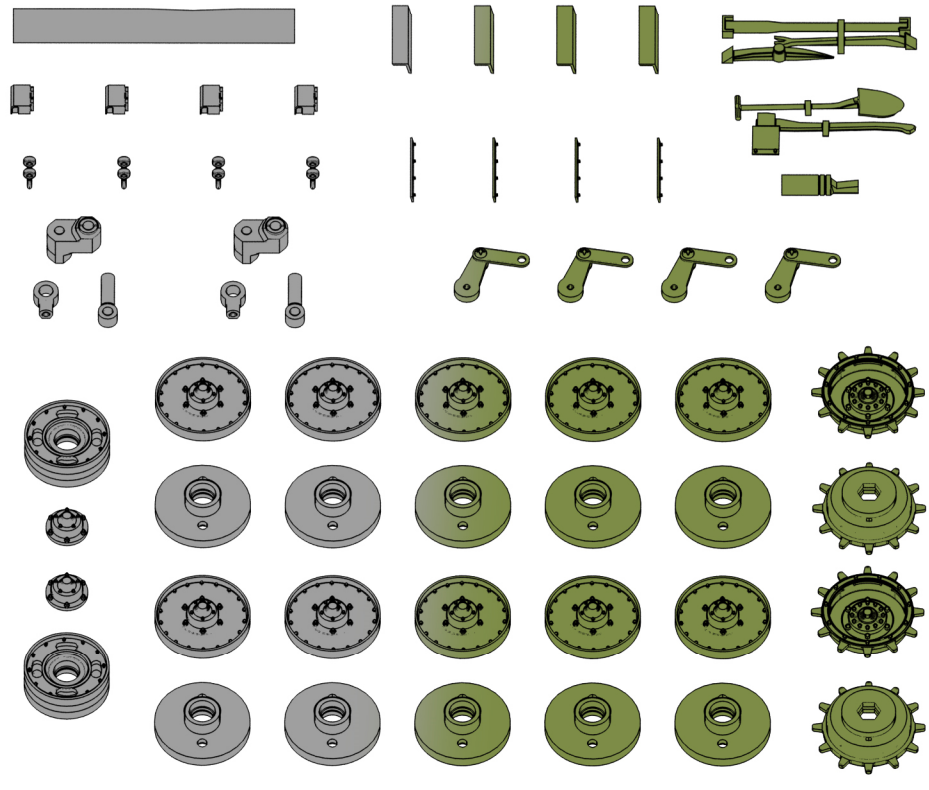
*Older style 76mm Scorpion variant shown
may be slight differences between others



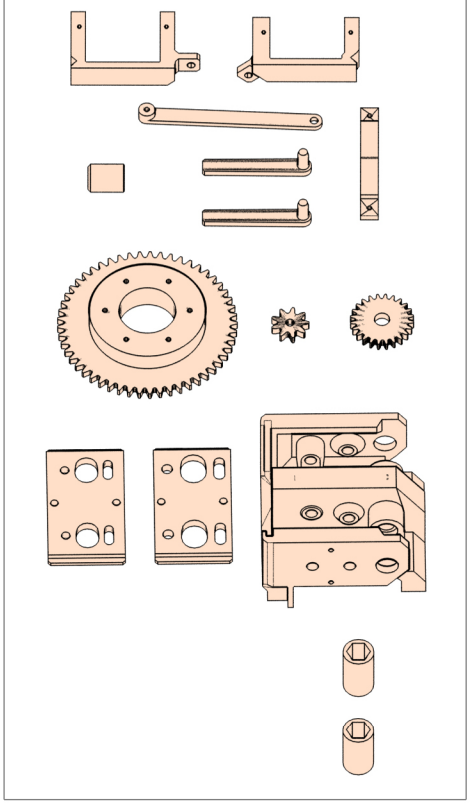


B

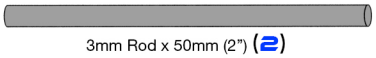
Paint any color!



No paint needed



STEP 24+25
TRANSMISSION



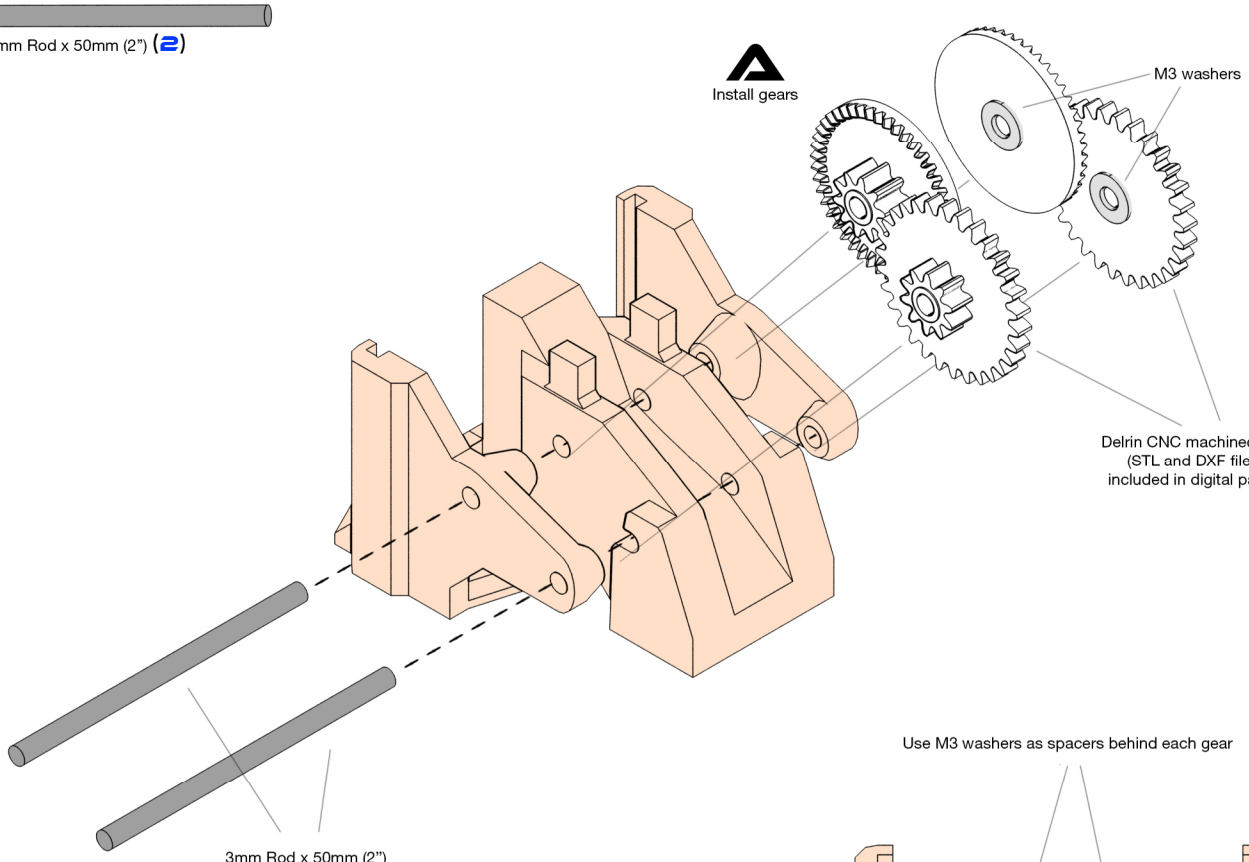
3mm Rod x 50mm (2") (2)

#2 x 3/8" (2)

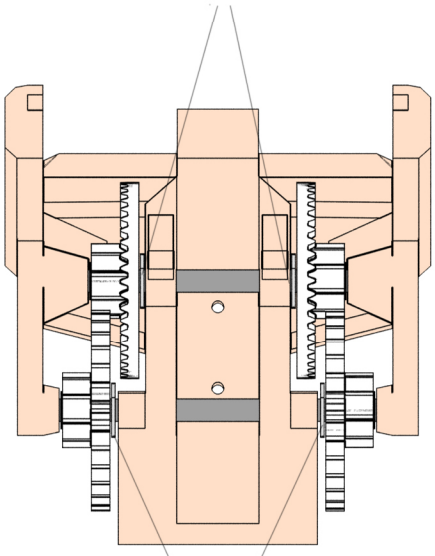
M3 washer (4)

A

Install gears



Use M3 washers as spacers behind each gear

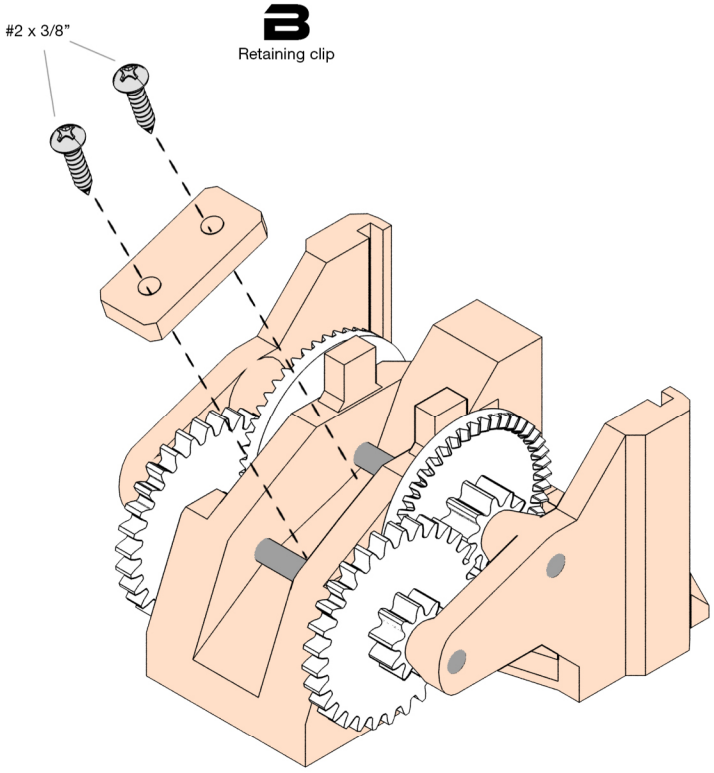


*You may not need the bottom 2 washers

depending how tight a fit the gearbox is in the tank

B

Retaining clip



STEP 26
MOTOR MOUNT

M3 x 8mm (4)

M2.5 x 8mm (4)

M3 washer (4)

#2 washer (4)

#2 x 3/8" (2)

B Install mount

Adjust gear mesh

#2 x 3/8"

C Screw in mount

A Attach motor

370 Motors
(Smaller bolt pattern
2.5mm screw size)

OPTION
Small bolt pattern

#2 washer

M2.5 x 8mm

370 Motors
(Larger bolt pattern
3mm screw size)

OPTION
Large bolt pattern

M3 washer

M3 x 8mm

! Old gearbox shown on this page same assembly for new one though!

STEP 27
INSTALL TRANSMISSION

#2 x 1/2" (2)

#2 x 3/8" (4)

#2 washer (6)

4-40 X 3/8" (2)
(Socket Head)

4-40 X 5/16" (2)
(Flat Socket Head)

Bearing
10mm x 15mm x 4mm (4)

*Same on both sides

4-40 X 5/16" Flat Socket Head

Delrin CNC Gear

C Install transmission

B Install sprockets (2)

*Tires only on "Wheels B" ("Wheels A" shown)

Threaded Hex Shaft
1/4" x 1 1/2" (38mm)

*Glue shaft

SUPER GLUE / ABS GLUE

A Glue sprockets (2)

Hex Shaft 1/4" x 1 1/2" (38mm) (2)

#2 x 1/2"

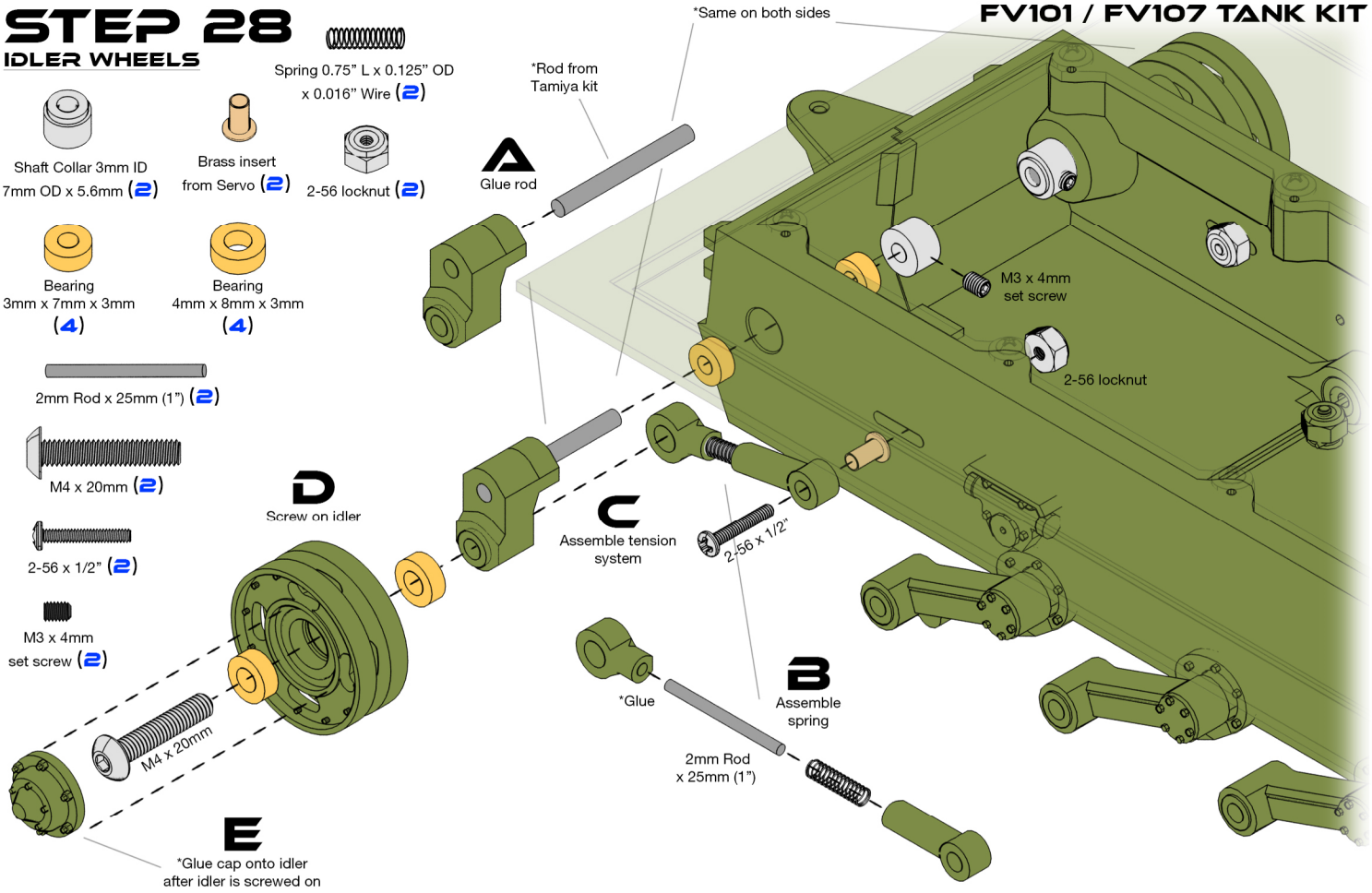
#2 washer

#2 x 3/8"

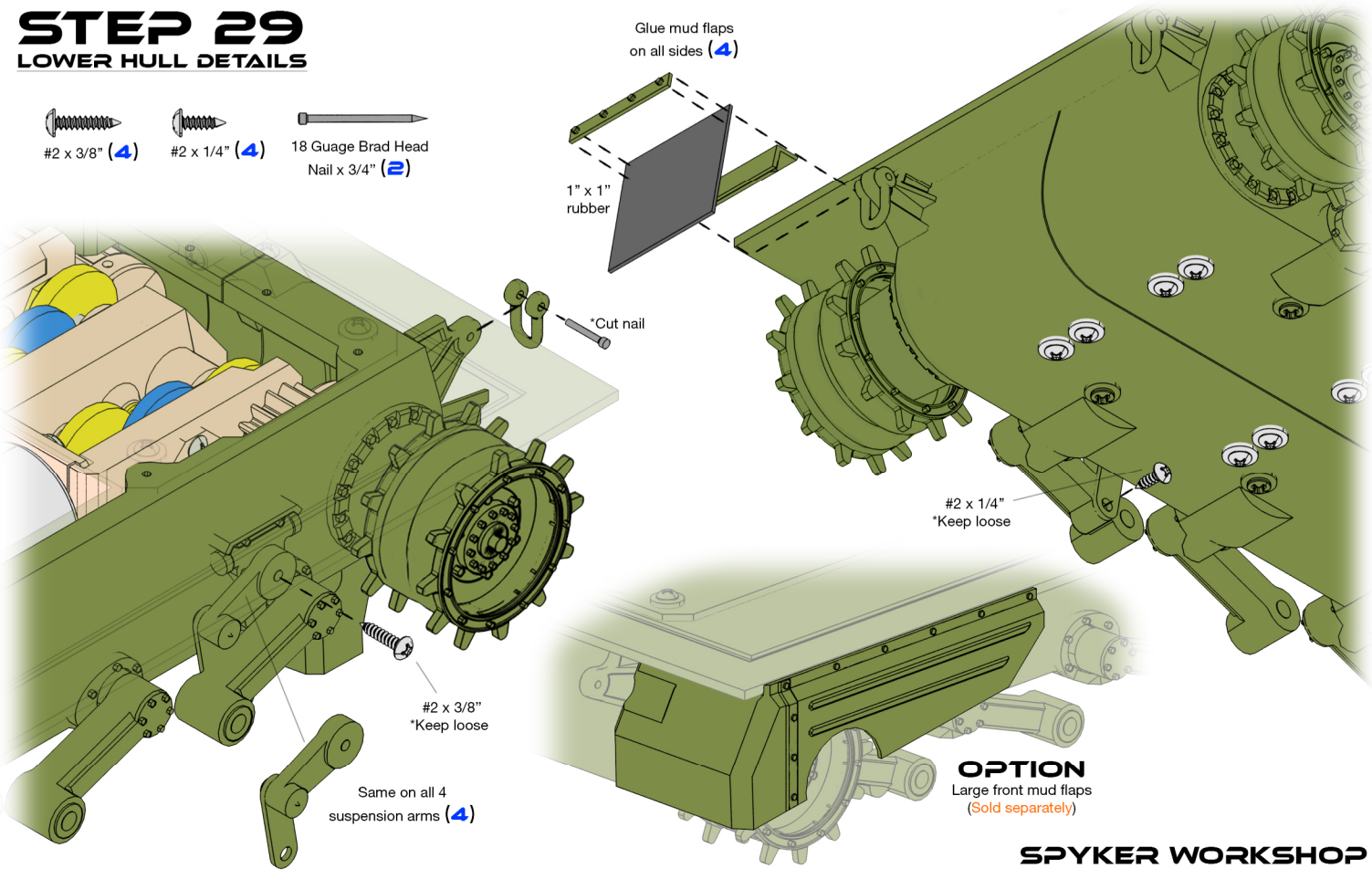
D Adjust gear mesh

SPYKER WORKSHOP

STEP 28
IDLER WHEELS

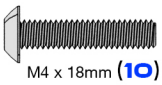


STEP 29
LOWER HULL DETAILS



STEP 30
WHEELS

Bearing
4mm x 8mm x 3mm
(20)

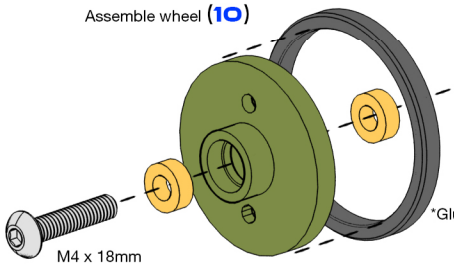


M4 x 18mm (10)

#2 x 1/4" (20)

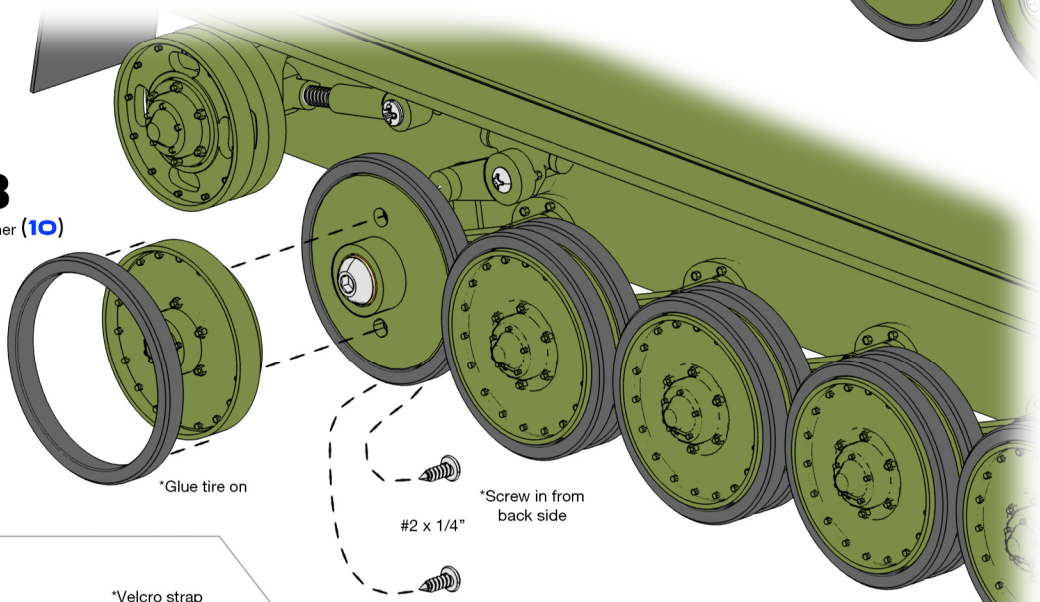
A

Assemble wheel (10)



B

Screw together (10)



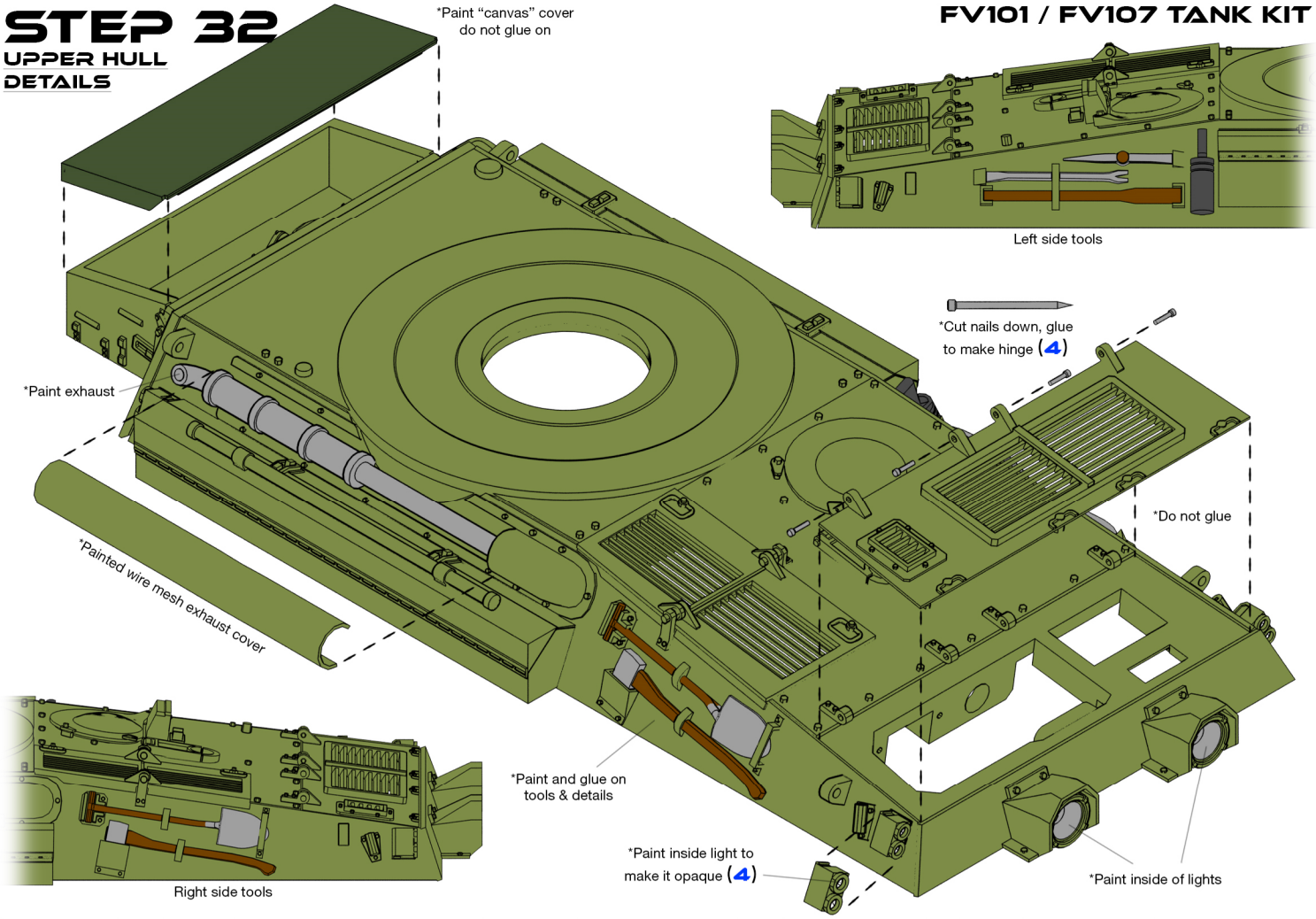
STEP 31
BATTERY STRAP

2-56 x 3/8" (2)

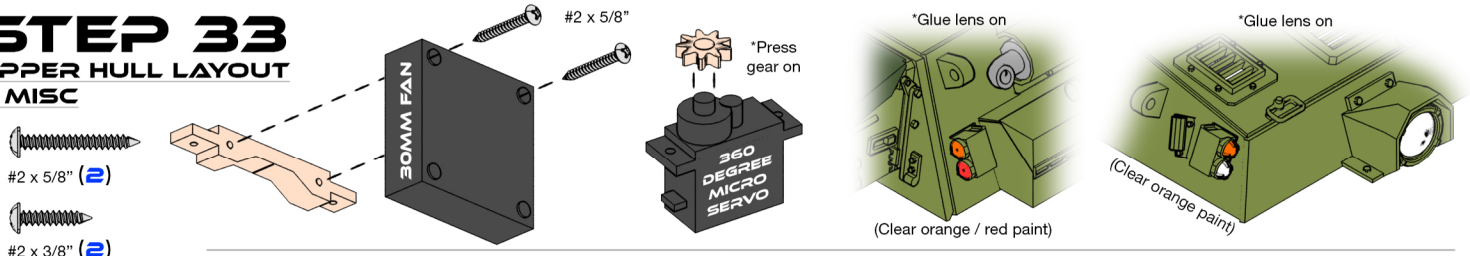
#2 washer (2)

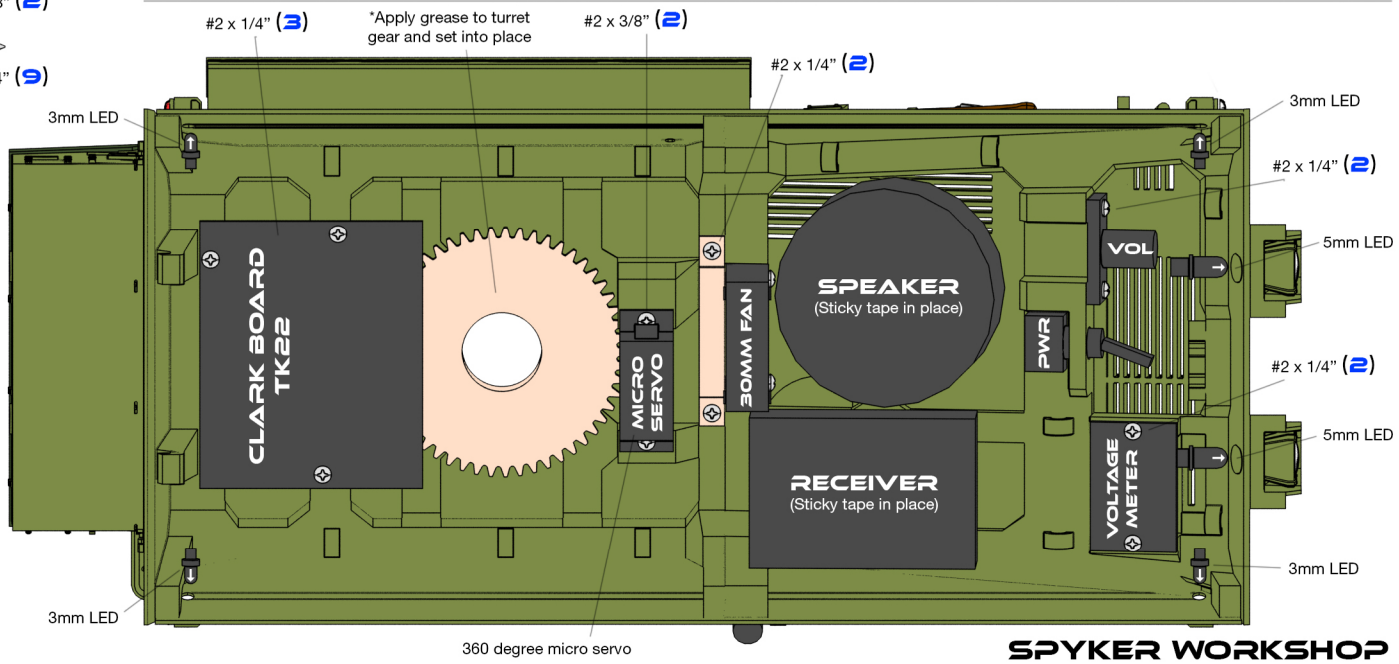
2-56 locknut (2)

STEP 32
UPPER HULL DETAILS



STEP 33
UPPER HULL LAYOUT & MISC



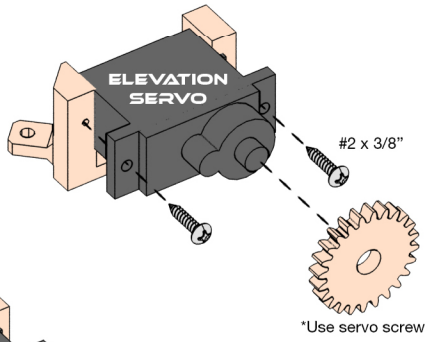


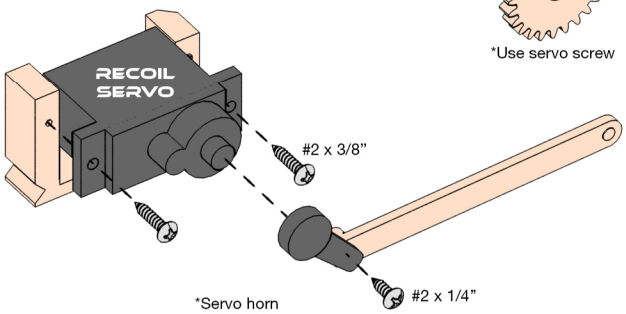
STEP 34
TURRET LAYOUT

#2 x 3/8" (4)

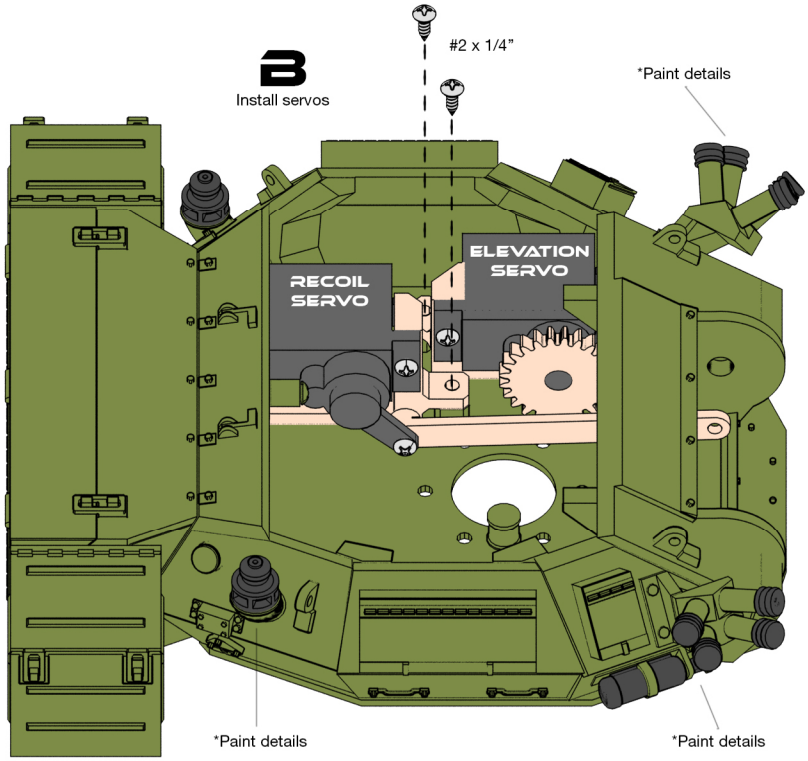
#2 x 1/4" (3)

A
Prepare servos





B
Install servos



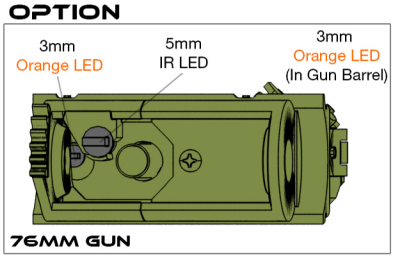
STEP 35
GUN LAYOUT

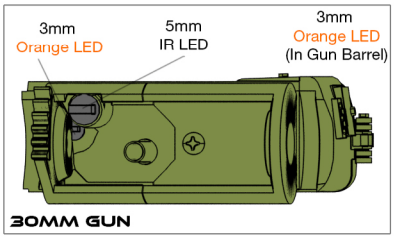
Bearing
4mm x 8mm x 3mm
(2)

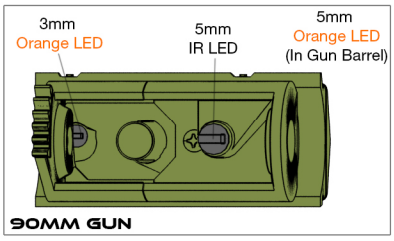
#2 x 1/4" (1)

A
Install LED's

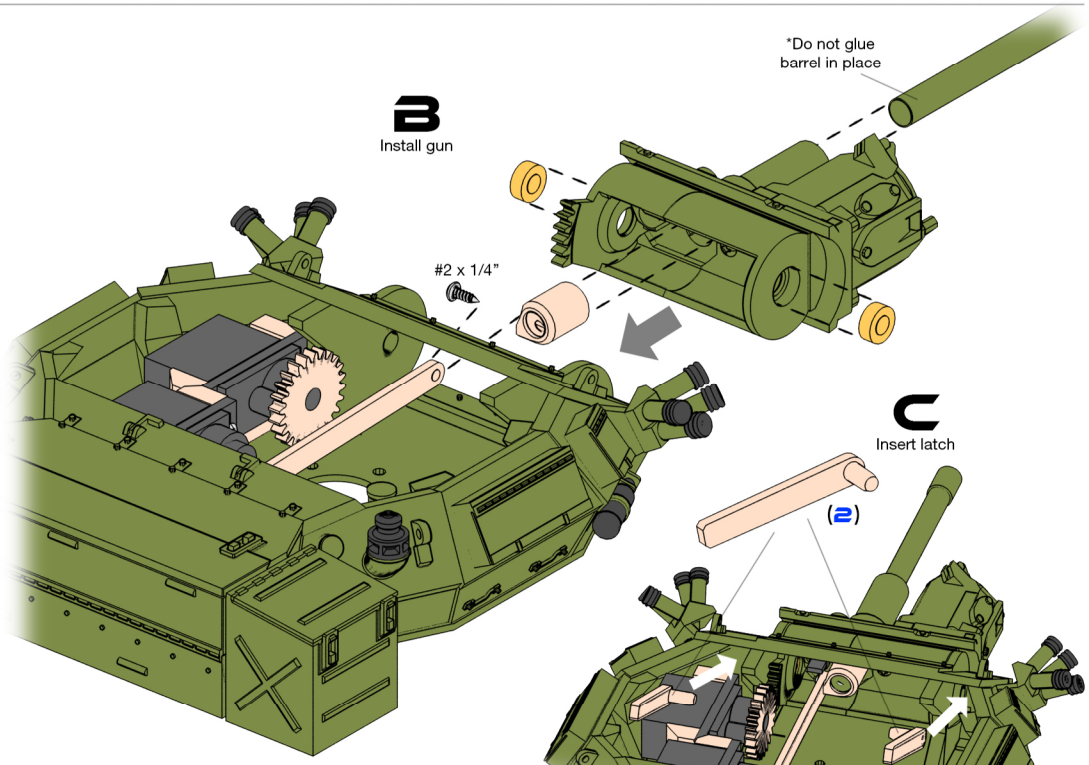
OPTION





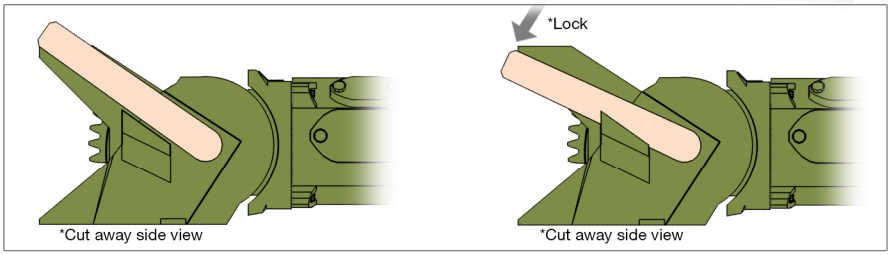


B
Install gun



C
Insert latch

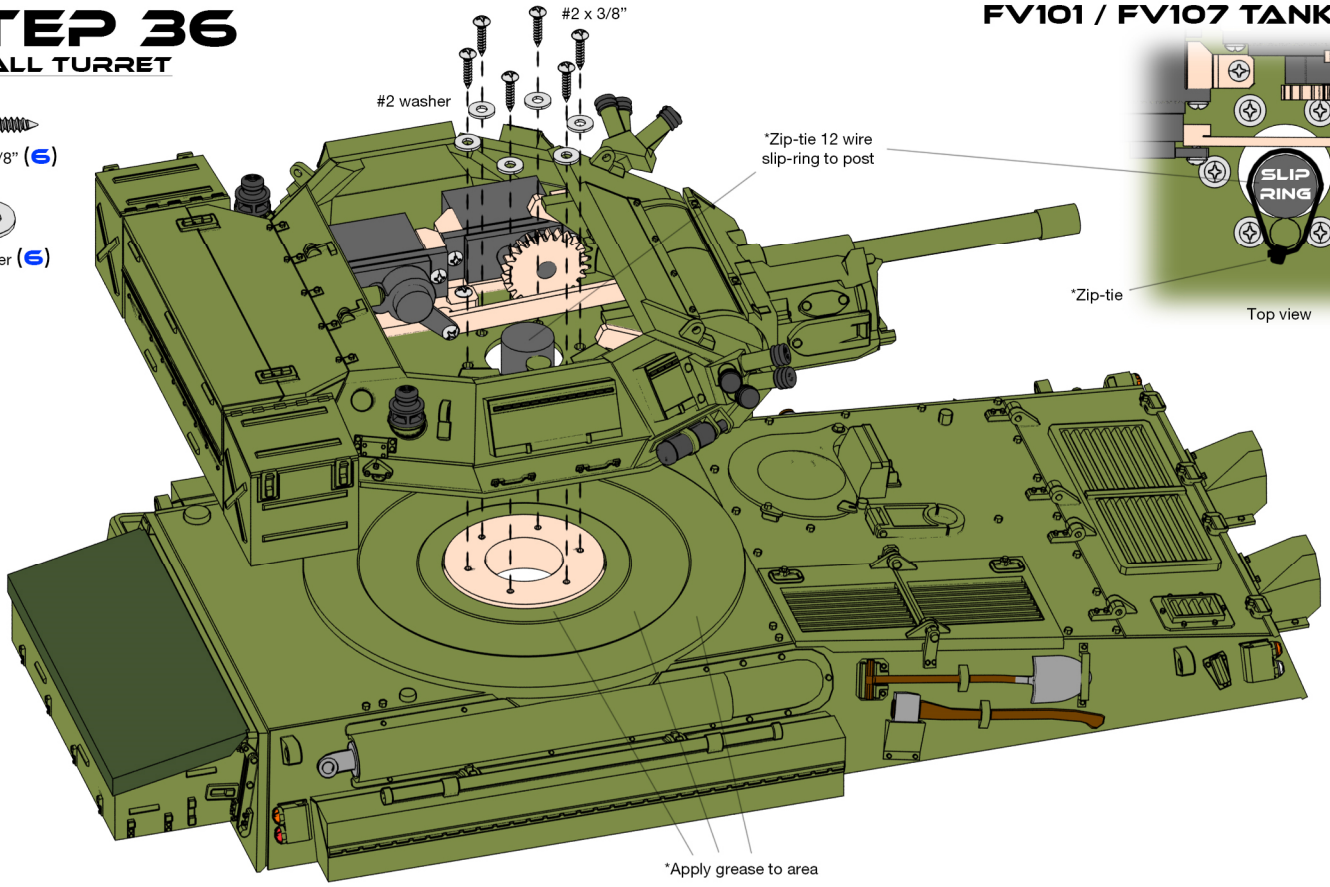
D
Lock latch



STEP 36
INSTALL TURRET

#2 x 3/8" (6)

#2 washer (6)

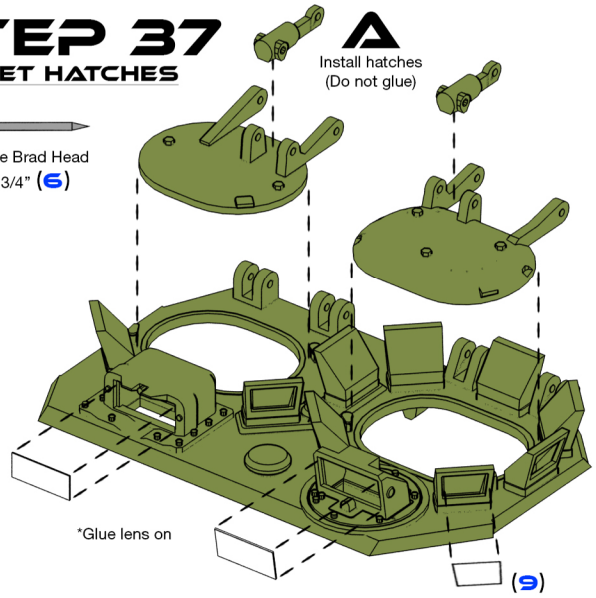


STEP 37
TURRET HATCHES

18 Guage Brad Head Nail x 3/4" (6)

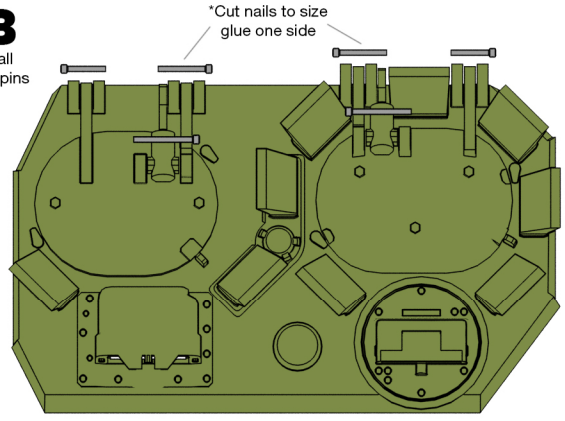
A

Install hatches (Do not glue)



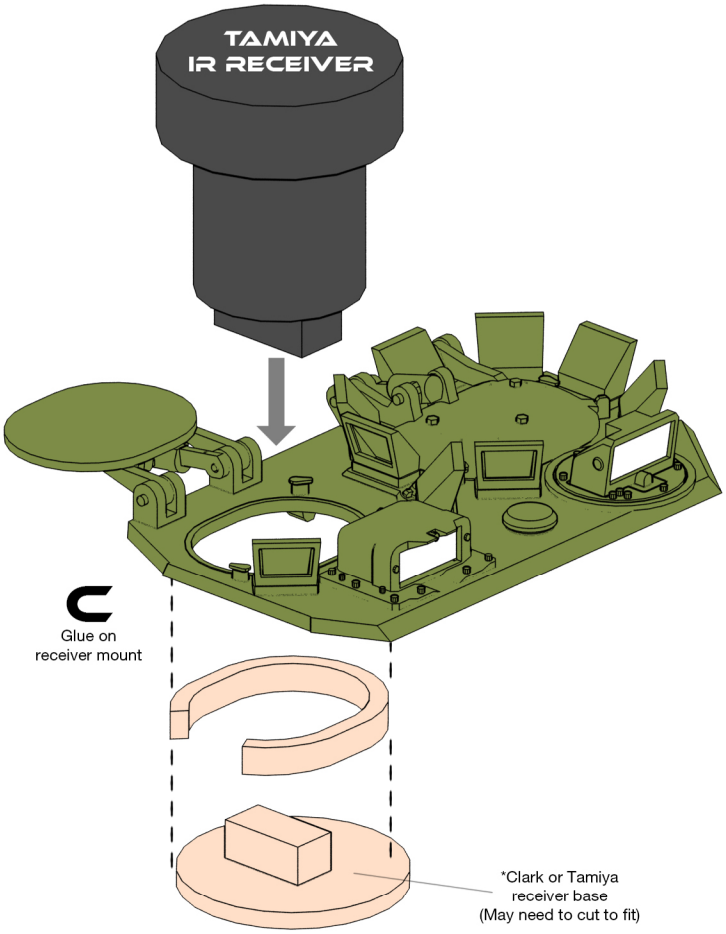
B

Install hatch pins



C

Glue on receiver mount



STEP 38

TRACKS (2)

18 Guage Brad Head Nail x 3/4" (65)

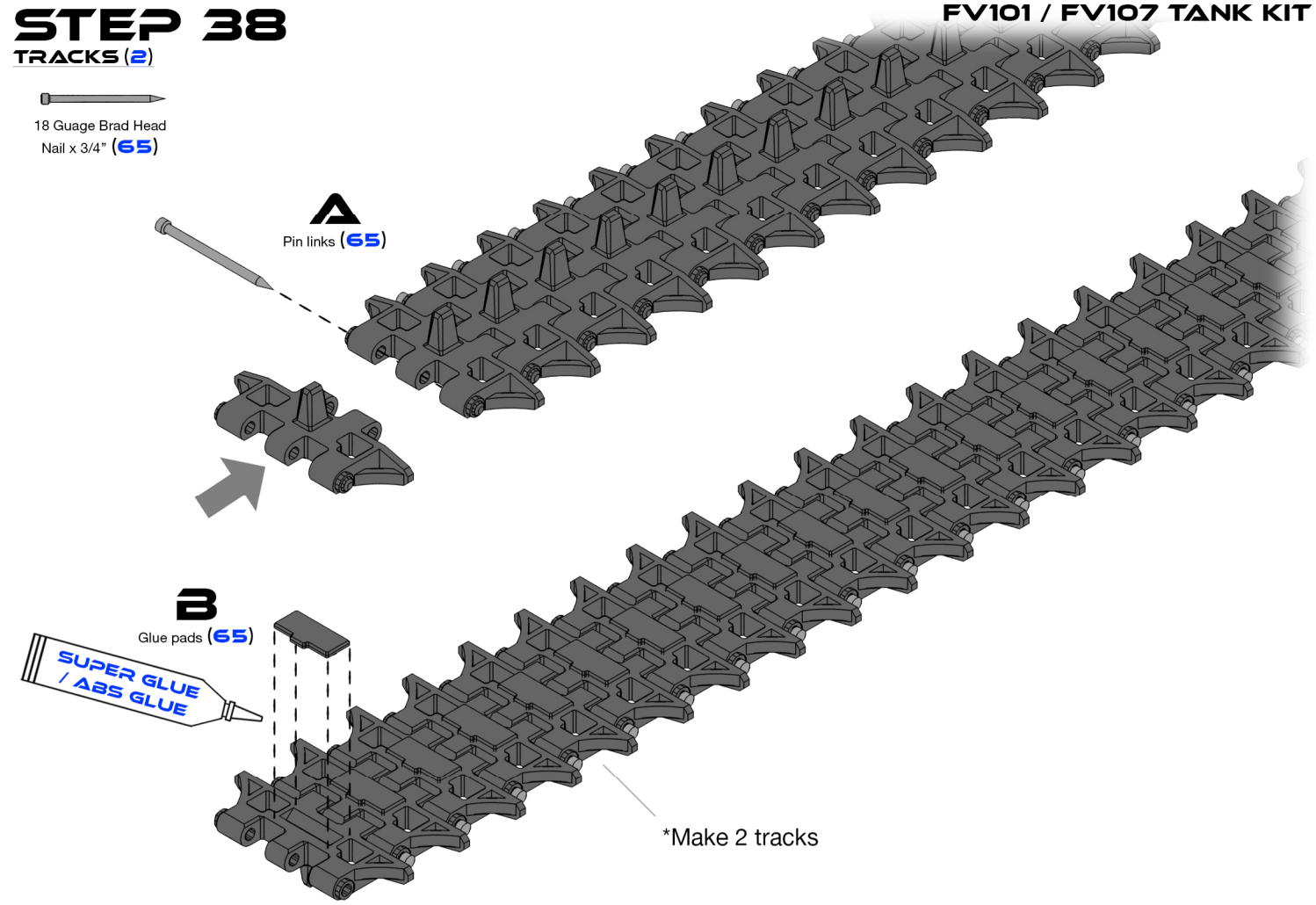
A

Pin links (65)

B

Glue pads (65)

SUPER GLUE / ABS GLUE



*Make 2 tracks

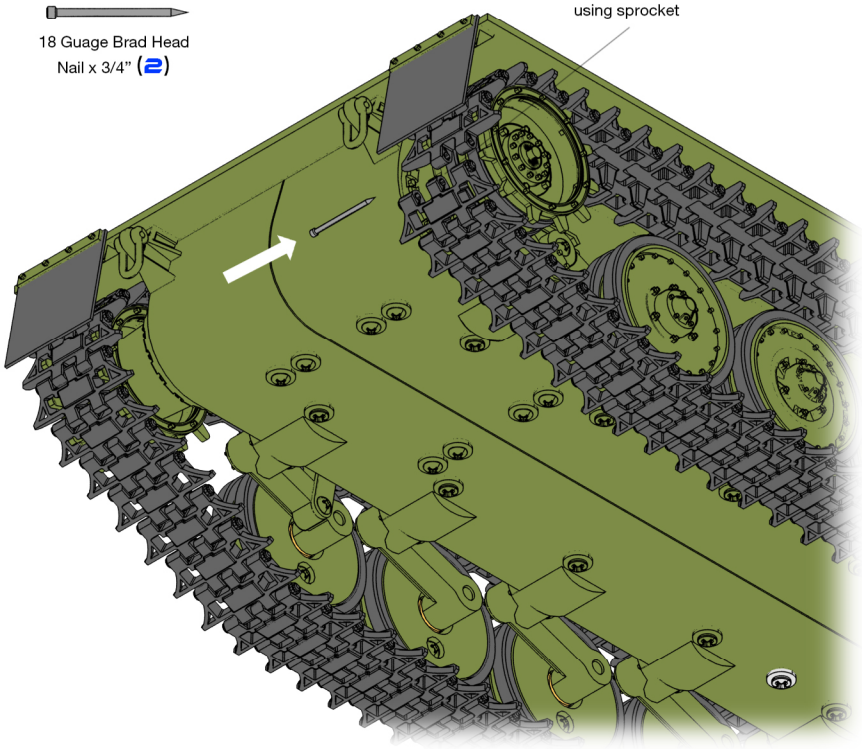
STEP 39

INSTALL TRACKS

18 Guage Brad Head Nail x 3/4" (2)

A

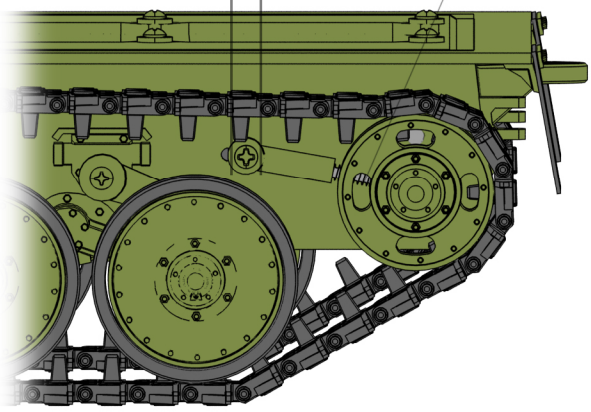
Pin last link using sprocket



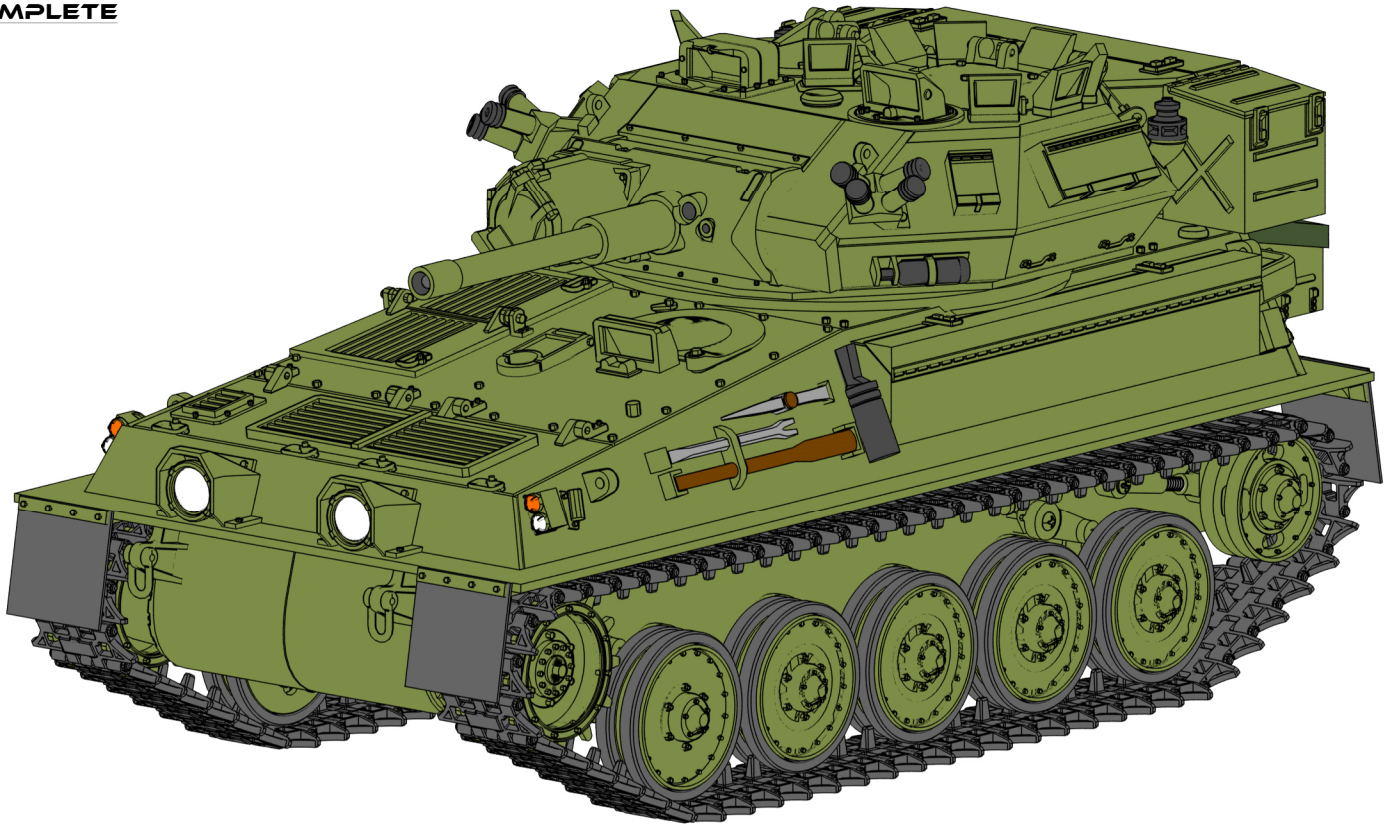
B

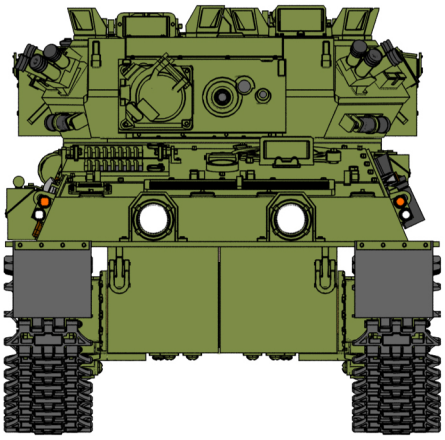
Adjust track tension

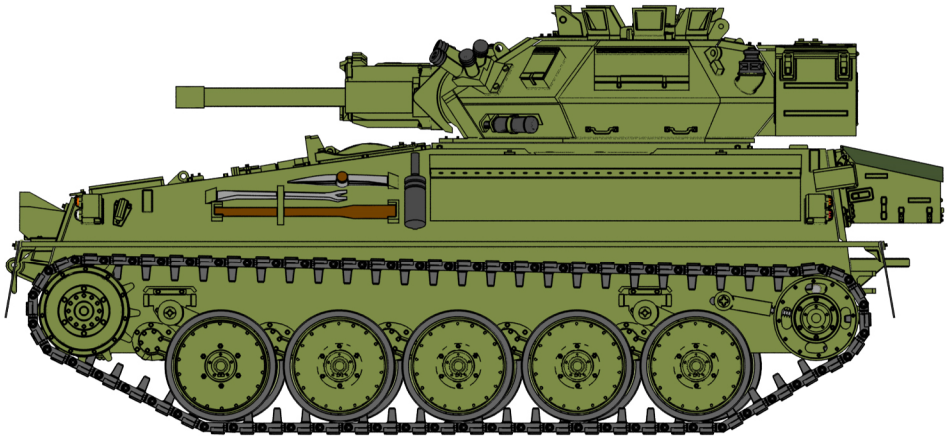
*Spring should be fully compressed

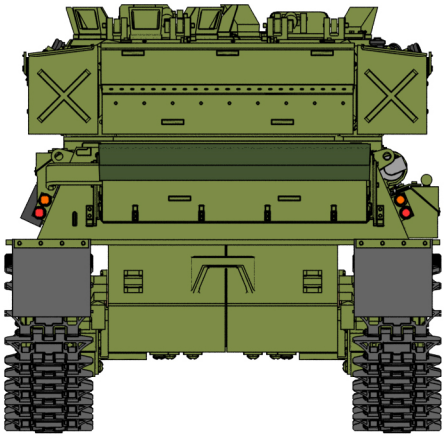


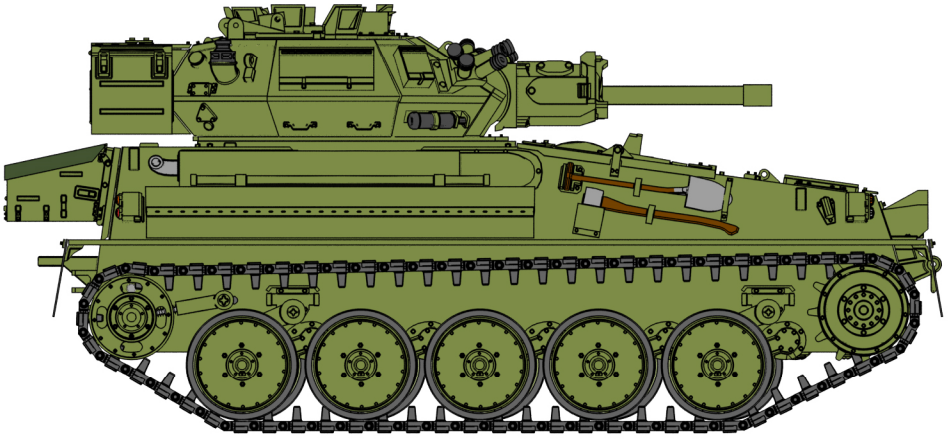
STEP 40
COMPLETE











HARDWARE

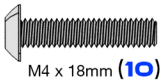
List of hardware included in your tank kit.

Scale 1:1

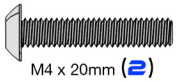
MACHINE SCREWS

2-56 x 3/8" (16)

2-56 x 1/2" (2)



M4 x 18mm (10)



M4 x 20mm (2)

M3 x 8mm (4)

M2.5 x 8mm (4)

4-40 X 3/8" (2)
(Socket Head)

4-40 X 5/16" (2)
(Flat Socket Head)

SHEET METAL SCREWS

#2 x 1/4" (50)

#2 x 3/8" (42)

#2 x 1/2" (6)

#2 x 5/8" (2)

2-56 locknut (16)

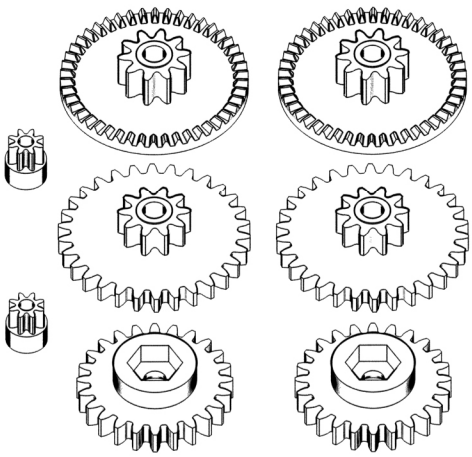
M3 x 4mm set screw (6)

M3 washer (8)

#2 washer (48)

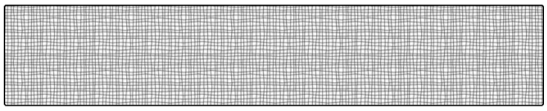
#4 washer (2)

#6 washer (2)

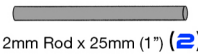


Delrin CNC machined gear set
(STL and DXF files also included in digital packages)

Velcro Strap 7" Long (1)



Wire Mesh For Exhaust 3 1/2" x 1" (1)

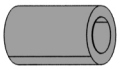


2mm Rod x 25mm (1") (2)

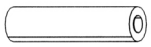
3mm Rod x 50mm (2") (2)

3mm Rod x 30mm (1.5") (2)

Threaded Hex Shaft 1/4" x 1 1/2" (38mm) (2)



Bronze Bushing
3/16" ID x 5/16" ID x 1/2" L (10)



Nylon Spacer
3/16" OD x 3/4" L (14)

Shaft Collar 3mm ID
7mm OD x 5.6mm (2)

Spring 0.75" L x 0.125" OD
x 0.016" Wire (2)

Bearing
3mm x 7mm x 3mm
(684 ZZ)
(4)

Bearing
4mm x 8mm x 3mm
(MR84 2RS / MR84 ZZ)
(26)

Bearing
10mm x 15mm x 4mm
(6700 2RS / 6700 ZZ)
(4)

Brass insert
from Servo (2)

18 Guage Brad Head
Nail x 3/4" (60 Grams)

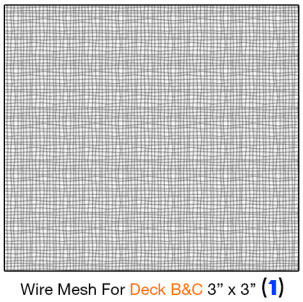
Rubber 1"x1" (4)

0.033" Spring Wire (16)

Brass Tube 1/4 OD x 0.222" ID x 3 5/8" For 76mm Gun (1)

Brass Tube 5/32 OD x 0.128" ID x 6" For 30mm Gun (1)

Brass Tube 9/32 OD x 0.253" ID x 6" For 90mm Gun (1)



Wire Mesh For Deck B&C 3" x 3" (1)