FIRE EXTINGUISHER CONVERSION

A HANDY GUIDE FROM PALESTINE ACTION



'FIELD TESTED ON ELBIT!'

HOW TO MODIFY A FIRE EXTINGUISHER TO SPRAY A JET OF VISCOUS LIQUID

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USES

WITH THE RIGHT MODIFICATION A FIRE EXTINGUISHER CAN SPRAY A JET OF VISCOUS LIQUID SUCH AS FAKE OIL, FAKE BLOOD OR DILUTED PAINT ETC UP TO A DISTANCE OF AROUND 12 METRES WHEN AIMED HORIZONTALLY, LESS WHEN AIMED VERTICALLY.

NOTES AND CAUTION

THIS GUIDE COVERS BRITISH FIRE EXTINGUISHERS. OTHER COUNTRY SPECIFICATIONS MAY VARY.
THE GUIDE ESSENTIALLY ONLY DEALS WITH HARDWARE MODIFICATIONS. PLEASE SEE SEPARATE GUIDES FOR STEP-BY-STEP INSTRUCTIONS ON MAKING PAINT MIXTURES, COLOURED SLIMES, FAKE OIL OR FAKE BLOOD ETC.

WARNING: SPRAY ONLY HARMLESS NON-TOXIC LIQUIDS. DO NOT SPRAY LIQUIDS IN A WAY THAT COULD CAUSE INJURY OR FEAR OF INJURY TO PEOPLE. NOTE THAT A HIGH PRESSURE JET OF LIQUID AT CLOSE RANGE COULD SERIOUSLY INJURE A PERSON'S EYES.

WARNING: TO AVOID RISK OF ELECTROCUTION DO NOT AIM LIQUID-FILLED EXTINGUISHERS AT ELECTRICAL EQUIPMENT INCLUDING LIVE OVERHEAD CABLES.

WHICH TYPE OF EXTINGUISHER TO USE

TRY 3, 6 OR 9 LITRE WATER FIRE EXTINGUISHERS WITH METAL OPERATING LEVERS, NOT PLASTIC, AND PREFERABLY ALSO WITH A SPRAY NOZZLE E.G. 'SPRAY', 'MIST', OR 'HYDROSPRAY'. NOTE THAT 9L EXTINGUISHERS ARE VERY HEAVY.

TWO 6L EXTINGUISHERS WILL FIT INTO A MEDIUM SIZED SUITCASE WITH WHEELS. A 3L EXTINGUISHER FITS INTO A MEDIUM SIZED BACKPACK.

SPRAY EXTINGUISHERS WON'T INITIALLY BE ABLE TO EITHER DISCHARGE A VISCOUS LIQUID - OR SPRAY A JET. HOWEVER WITH MODIFICATION THEY ACTUALLY PERFORM BOTH FUNCTIONS BETTER THAN AN EXTINGUISHER SOLD AS A JET SPRAY SPECIFICATION TO BEGIN WITH.

FOAM EXTINGUISHERS CAN ALSO BE MODIFIED IN THE SAME WAY AS WATER SPRAY EXTINGUISHERS, THE HARDWARE IS NEAR ENOUGH IDENTICAL. THE FOAM NEEDS TO BE DISPOSED OF INTO A FOUL SEWER, NOT DOWN A SURFACE WATER DRAIN WHICH CARRIES RAINWATER ONWARDS TO A RIVER, STREAM OR SOAKAWAY.

THE HARDWARE OF POWDER EXTINGUISHERS IS ALSO NEAR ENOUGH IDENTICAL EXCEPT FOR THE HOSE NOZZLE WHICH LIKE MANY WATER JET EXTINGUISHERS WILL NEED MORE MODIFICATIONS THAN WATER SPRAY OR FOAM EXTINGUISHERS (SEE SECTION 7). THE POWDER IS BIODEGRADABLE, AND CAN BE DISCHARGED INTO A BAG AND SENT TO LANDFILL.

HOW TO PURCHASE FIRE EXTINGUISHERS

YOU CAN BUY LOW-COST USED OR REFURBISHED EXTINGUISHERS THROUGH POPULAR ONLINE AUCTION SITES SUCH AS EBAY. MANY OF THE LISTINGS WILL LEAD YOU ONTO COMPANIES THAT DO SERVICING AND THEY MIGHT ALSO SELL TO YOU DIRECT. BUYING SECOND HAND SAVES MONEY AND HAS LITTLE ENVIRONMENTAL IMPACT.

PRICES RANGE FROM AROUND £4 TO £15 PER EXTINGUISHER DEPENDING ON SUPPLY AND DEMAND AT ANY ONE TIME. £10 PER EXTINGUISHER IS FAIRLY TYPICAL.

BEING CLEAR THAT YOU ARE LOOKING FOR OUT OF SERVICE EXTINGUISHERS HELPS TO KEEP THE PRICE DOWN AND YOU CAN NORMALLY NEGOTIATE A DISCOUNT WHEN BUYING A LARGE BATCH. YOU CAN ALSO SOMETIMES FIND JOB LOTS OF EXTINGUISHERS FOR AS LITTLE AS £1 PER EXTINGUISHER.

MOST IF NOT ALL OF THEM WILL NORMALLY HOLD PRESSURE EVEN AT THAT PRICE.

BASIC EQUIPMENT

- THICK ELASTIC BAND OR LONG STRIP OF RAG
- RUBBER, WOODEN OR PLASTIC MALLET
- HACK SAW
- SMALL ADJUSTABLE SPANNER
- 2L MEASURING JUG
- WATER (TO TEST)
- (METAL) 1/4" BSP TAPER (BSPT) MALE THREAD X 1/8" BSPT FEMALE THREAD HEX BUSH
- 1/8" BSPT MALE THREAD HIGH PRESSURE SCHRADER VALVE RATED TO 500PSI / 34BAR OR NOT LESS THAN 300PSI / 21 BAR
- (HIGH QUALITY) 200PSI / 14BAR BICYCLE FLOOR PUMP OR AIR COMPRESSOR WITH REINFORCED HOSE*
- DUCT TAPE OR ANTI-TAMPER PLASTIC SEALS

* RECOMMENDED: TOPEAK JOE BLOW XO 200PSI FLOOR PUMP (HAS SPARE PARTS AVAILABLE FOR LIFETIME USE)

YOU MAY ALSO NEED

- LARGE PLASTIC FUNNEL
- PTFE TAPE
- (EXTRA) SAFETY PINS OR SUITABLE ALTERNATIVE

FOR HOSE NOZZLE AND CONNECTOR MODIFICATIONS

- (METAL OR PLASTIC) 3/8" X 3/8" OR 1/2" X 3/8" BARBED HOSE JOINER/CONNECTOR

- (METAL) 1/4" BSPT MALE THREAD X 3/8" OR 1/2" BARBED HOSE TAIL END CONNECTOR
- 13-20MM METAL HOSE CLIPS/CLAMPS
- FLATHEAD SCREW DRIVER

FOR MAKING A RECHARGE ADAPTOR FROM A FIRE EXTINGUISHER HOSE (APPENDIX 1)

- FIRE EXTINGUISHER HOSE
- 1/4" BSPT FEMALE THREAD X 3/8" OR 1/2" HOSE TAIL END CONNECTOR
- MARKER PEN
- EMERY PAPER OR RASP
- 13-20MM METAL HOSE CLIPS/CLAMPS
- FLATHEAD SCREW DRIVER

FOR FITTING A HIGH-PRESSURE SCHRADER TYRE VALVE (APPENDIX 2)

- MARKER PEN
- METAL CENTRE PUNCH OR THICK NAIL
- POWER DRILL + 12MM OR 1/2" HSS DRILL BIT FOR METAL
- SAFETY GLASSES
- SMALL PIECE OF EMERY PAPER (OR NARROW ROUND FILE)
- (METAL) HIGH PRESSURE 'VAN/CARAVAN/MOTORHOME' OR 'VAN/LORRY' SCHRADER TYRE VALVE
- SHOELACE OR SMALL LENGTH OF THREAD
- SMALL SCREW OR SIMILAR SIZED WEIGHT
- NARROW PLIERS

BASIC MODIFICATIONS

FOLLOW STEPS 1 - 16

1. DISCHARGE THE EXTINGUISHER

PULL AND REMOVE THE SAFETY PIN.



SLOWLY DEPRESS THE DISCHARGE LEVER.



SOME WATER EXTINGUISHERS ALSO CONTAIN A FOAM ADDITIVE SO IT IS BEST TO DISCHARGE ALL WATER EXTINGUISHERS INTO A FOUL SEWER, NOT JUST FOAM ONES.

2. LOOSEN THE VALVE ASSEMBLY

TIE THE OPERATING LEVERS TOGETHER WITH AN ELASTIC BAND OR STRIP OF RAG. THIS REDUCES THE CHANCE OF BENDING EITHER OF THE TWO LEVERS SIDEWAYS WHEN APPLYING FORCE.



WITH THE EXTINGUISHER LYING FLAT AND ONE HAND GRIPPING THE CYLINDER, WITH THE OTHER HAND PUSH DOWNWARDS ON THE OPERATING LEVERS AS HARD AS YOU CAN TO BEGIN LOOSENING IN AN ANTI-CLOCKWISE DIRECTION.

IF ABSOLUTELY NECESSARY STRIKE THE LEVERS WITH A RUBBER MALLET TO LOOSEN THEM. DO THIS CAREFULLY SO AS NOT TO BEND THEM.





3. DISCONNECT THE VALVE ASSEMBLY

FINISH UNDOING THE VALVE ASSEMBLY BY HAND.



LIFT OUT THE VALVE ASSEMBLY AND SYPHON TUBE.





4. EMPTY THE CYLINDER

EMPTY OUT ANY REMAINING LIQUID.

FOAM EXTINGUISHERS WILL ALSO NEED RINSING OUT WITH WATER.



5. REMOVE THE SYPHON TUBE FILTER

SOME EXTINGUISHERS HAVE FILTERS AT THE END OF THE SYPHON TUBE WHICH WILL OBSTRUCT VISCOUS LIQUIDS.



THE FILTER MIGHT UNSCREW, IF NOT, USE A HACKSAW TO CUT THE END OFF UNTIL THE FULL INTERNAL DIAMETER OF THE SYPHON TUBE IS EXPOSED. CUT AS NEAR TO THE END OF THE TUBE AS POSSIBLE TO AVOID SHORTENING IT.





6. DISCONNECT THE HOSE

USING A SMALL ADJUSTABLE SPANNER TURN THE HOSE CONNECTOR ANTI-CLOCKWISE UNTIL THE HOSE DISCONNECTS.





7. MODIFY THE HOSE NOZZLE

TO CREATE A POWERFUL JET OF VISCOUS LIQUID WITH A FAST FLOW RATE, THE INTERNAL DIAMETER OF THE NOZZLE HOLE NEEDS TO BE AT LEAST EQUAL TO THE HOLE INSIDE THE HOSE CONNECTOR OR SMALLER, BUT NOT TOO SMALL.

WHEN THE INTERNAL DIAMETER OF THE NOZZLE HOLE IS ONLY A FEW MILLIMETRES WIDE, TYPICAL OF A JET HOSE, MOST VISCOUS LIQUIDS WILL PROBABLY STILL PASS THROUGH.

HOWEVER WITH SUCH A SMALL DIAMETER THE EXTINGUISHER WILL TAKE LONGER TO DISCHARGE, LACK A BIT OF REACH AND THE VERY NARROW JET CANNOT EASILY CUT THROUGH STRONG AIR CURRENTS.

ON A SPRAY NOZZLE THE HOLES ARE MUCH TOO SMALL TO DISCHARGE A VISCOUS LIQUID AT ALL BUT WITH THE RIGHT MODIFICATION THESE HOSES USUALLY CREATE THE BEST JET.

CONTINUE TO SECTIONS 7 (A), (B), (C), (D), (E) AND (F) FOR INSTRUCTIONS ON HOW TO MODIFY EACH DIFFERENT TYPE OF NOZZLE TO CREATE A POWERFUL JET SPRAY HOSE.

7. (A) DETACHABLE SPRAY NOZZLES

SIMPLY ROTATE THE SPRAY NOZZLE ANTI-CLOCKWISE TO REMOVE IT ALTOGETHER, REVEALING A HOLE THAT IS USUALLY A GOOD 6 TO 8MM WIDE.

THE HOLE INSIDE THE HOSE CONNECTOR IS USUALLY THE SAME DIAMETER AS INSIDE THE NOZZLE CONNECTOR OR LARGER. THE HOSE WILL NOW PRODUCE A POWERFUL FAST JET OF LIQUID.







7. (B) INTEGRATED SPRAY NOZZLES

USING A HACKSAW CUT OFF NEARLY ALL OF THE PLASTIC SPRAY NOZZLE AS CLOSE AS YOU CAN TO THE METAL COLLAR. THIS SHOULD REVEAL A MUCH WIDER INTERNAL DIAMETER ON MOST SPRAY NOZZLES, USUALLY ABOUT 6 TO 8MM.

THE HOLE INSIDE THE HOSE CONNECTOR IS USUALLY THE SAME DIAMETER OR LARGER. THE HOSE WILL NOW PRODUCE A POWERFUL FAST JET OF LIQUID.

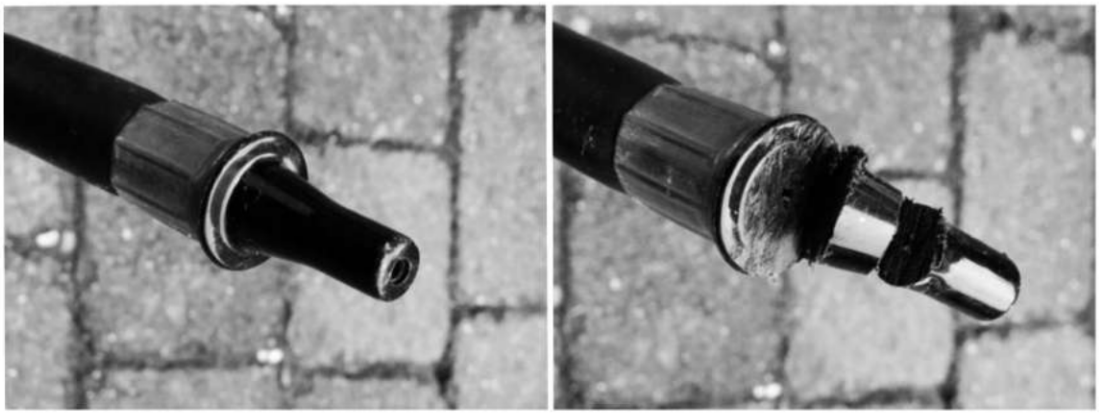






7. (C) JET SPRAY NOZZLES

USING A HACK SAW TRY MAKING A FEW INVESTIGATORY CUTS TO SEE IF THE INTERNAL DIAMETER INCREASES TOWARDS THE METAL COLLAR, NORMALLY IT DOES NOT.



ANOTHER OPTION IS TO CUT THE NOZZLE OFF ENTIRELY, EXPOSING THE FULL INTERNAL DIAMETER OF THE HOSE.



THE PROBLEM NOW IS THAT THE INSIDE OF THE HOSE WILL HAVE A LARGER INTERNAL DIAMETER THAN THE HOSE CONNECTOR, ESPECIALLY ON A JET SPRAY HOSE. WHETHER IT WILL STILL PRODUCE AN ACCEPTABLE JET DEPENDS ON HOW BIG THE DIFFERENCE IS – TEST IT. A BETTER OPTION IS TO MAKE A NEW NOZZLE (SEE NEXT SECTION).

7. (D) MAKING A WIDER JET SPRAY NOZZLE

DEPENDING ON THE INTERNAL DIAMETER OF THE HOSE, SELECT EITHER A 3/8" X 3/8" OR 1/2" X 3/8" BARBED HOSE JOINER. INSERT THE JOINER INTO THE END OF THE HOSE WITH THE 3/8" SIDE MAKING UP THE END TIP OF THE NOZZLE.

POSITION A 13-20MM METAL HOSE CLIP THE DISTANCE OF ABOUT ONE RAMP OF THE BARB FROM THE END OF THE HOSE. USING A FLATHEAD SCREWDRIVER WIND THE HOSE CLIP SCREW IN A CLOCKWISE DIRECTION AS TIGHT AS IT WILL GO.





WARNING: FAILURE TO PROPERLY POSITION OR ADEQUATELY TIGHTEN THE HOSE CLIP COULD LEAD TO THE HOSE JOINER SHOOTING OFF DURING OPERATION WHICH RISKS SERIOUSLY INJURING A PERSON'S EYES.





7. (E) MAKING A WIDER HOSE CONNECTOR

IF YOU HAVE MODIFIED THE NOZZLE, AND THE INTERNAL DIAMETER IS STILL A LITTLE WIDER THAN THAT OF THE HOSE CONNECTOR, IT MIGHT STILL PRODUCE AN OKAY JET – TEST IT. HOWEVER, YOU CAN INSTEAD MAKE A WIDER HOSE CONNECTOR. USING A HACK SAW CUT THE CONNECTOR OFF THE HOSE AS CLOSE TO THE METAL COLLAR AS YOU CAN.

SELECT EITHER A 1/4" BSP MALE THREAD X 3/8" BARBED HOSE TAIL END CONNECTOR OR A 1/4" X 1/2" DEPENDING ON THE HOSE.





INSERT THE TAIL END INTO THE HOSE AND FASTEN A HOSE CLIP IN THE SAME WAY AS 7. (D).





7. (F) NO HOSE

HAVING NO HOSE WILL DIFFUSE LIQUIDS INTO A SHORT-RANGE DISPERSION OF DROPLETS, IDEAL FOR CREATING EXPANSIVE COVERAGE AT CLOSE RANGE.

THIS SETUP IS IDEAL FOR REDECORATING AN ENTIRE STATUE OR MONUMENT WITHIN SECONDS, OR FOR AVOIDING HEAVY SPLASHBACK WITHIN A CONFINED SPACE.

THE USER CAN GAIN MORE CONTROL BY ONLY PARTIALLY OPENING THE RELEASE VALVE WITH THE DISCHARGE LEVER AND/OR ONLY DEPRESSING THE DISCHARGE LEVER FOR A SPLIT SECOND AT A TIME.



8. REFILL THE CYLINDER

REFILL ONLY UP TO THE STATED VOLUME E.G. 3, 6 OR 9L LEAVING THE CORRECT VOLUME OF AIR SPACE AT THE TOP.

FILLING E.G. 1L AT A TIME FROM A 2L (HALF FULL) MEASURING JUG WILL AVOID SPILLAGE UNLESS THE LIQUID IS VERY THICK, THEN YOU MAY NEED TO USE A FUNNEL.





FIRST TRY WATER TO TEST YOUR MODIFICATIONS. THEN - FOR PAINT MIXTURES TRY 1 PART PAINT TO 1 PART WATER, OR IF ON A BUDGET THEN AT LEAST A RATIO OF 1:2. BE SURE TO MIX THEM TOGETHER. MATT EMULSION WORKS WELL AND IS MORE PERMANENT. POSTER PAINT IS CHEAPER AND ALSO WASHABLE.

PLEASE SEE SEPARATE GUIDES FOR INSTRUCTIONS ON MAKING YOUR OWN PLASTIC-FREE PLANT-BASED ALTERNATIVES.

9. RECONNECT THE VALVE ASSEMBLY

INSERT THE VALVE ASSEMBLY AND TIE THE LEVERS AGAIN. WIND IN A CLOCKWISE DIRECTION AS FAR AS YOU CAN.





LAY THE CYLINDER FLAT (YOU MIGHT ALSO WANT TO FIRST PLUG THE HOSE CONNECTOR POINT TO STOP LIQUIDS LEAKING OUT). GRIP THE CYLINDER WITH ONE HAND AND WITH THE OTHER PUSH DOWN ON THE OPERATING LEVERS TO TIGHTEN THE VALVE ASSEMBLY FURTHER. IF YOU FIND THIS DIFFICULT THEN CAREFULLY STRIKE THE LEVERS WITH A RUBBER MALLET INSTEAD, BUT TRY NOT TO.



10. SCREW IN THE HEX BUSH

WRAP A FEW LAYERS OF PTFE TAPE AROUND THE MALE THREAD. THIS AVOIDS THE NEED TO OVERTIGHTEN SHOULD AIR AND LIQUID START TO LEAK DURING REPRESSURISING. IF YOU DON'T HAVE ANY TAPE YET THEN AT LEAST APPLY A DAB OF OIL INSTEAD TO PROTECT THE THREADS FROM WEAR.





USING AN ADJUSTABLE SPANNER WIND THE HEX BUSH CLOCKWISE INTO THE VALVE ASSEMBLY. WHETHER IT TIGHTENS AT A POINT SOME OR ALL OF THE WAY IN DEPENDS ON THE COMBINATION OF TAPER OR PARALLEL THREADS. IF THE HEX BUSH DOESN'T FIT THEN SEE THE TROUBLESHOOTING SECTION AND APPENDICES FOR ALTERNATIVES. THE CONNECTING THREAD WILL ALMOST ALWAYS BE A 1/4" BSP.





11. SCREW IN THE SCHRADER VALVE

WRAP A FEW LAYERS OF PTFE TAPE AROUND THE 1/8" BSP MALE THREAD OR AT LEAST APPLY A DAB OF OIL.





USING AN ADJUSTABLE SPANNER WIND THE SCHRADER VALVE CLOCKWISE AS FAR AS IT WILL GO INTO THE HEX BUSH. YOU WILL PROBABLY NEVER TAKE THE VALVE BACK OUT SO FINISH QUITE TIGHT.

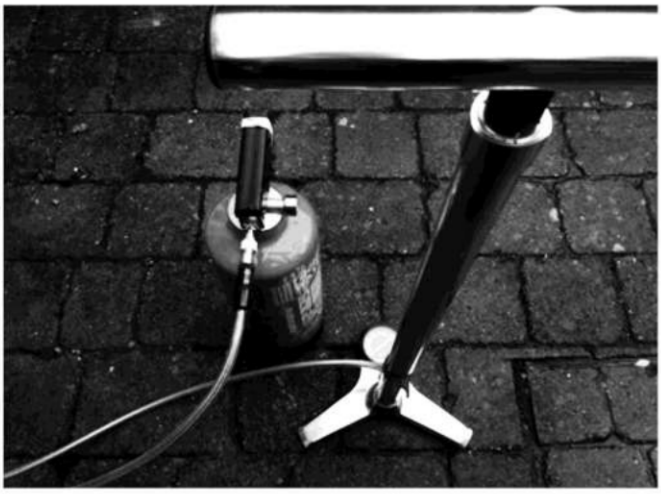




12. REPRESSURISE THE EXTINGUISHER

PUT A DAB OF OIL ONTO THE SCHRADER VALVE THREAD AND THEN CONNECT THE PUMP HEAD. KEEP THE OPERATING LEVERS TIED TOGETHER TO ENABLE THE AIR TO PASS THROUGH THE RELEASE VALVE AND INTO THE CYLINDER. NOTE: DO NOT USE A CHEAP PUMP, FOR STARTERS THE HEAT BUILD UP WILL PROBABLY RUPTURE THE HOSE.



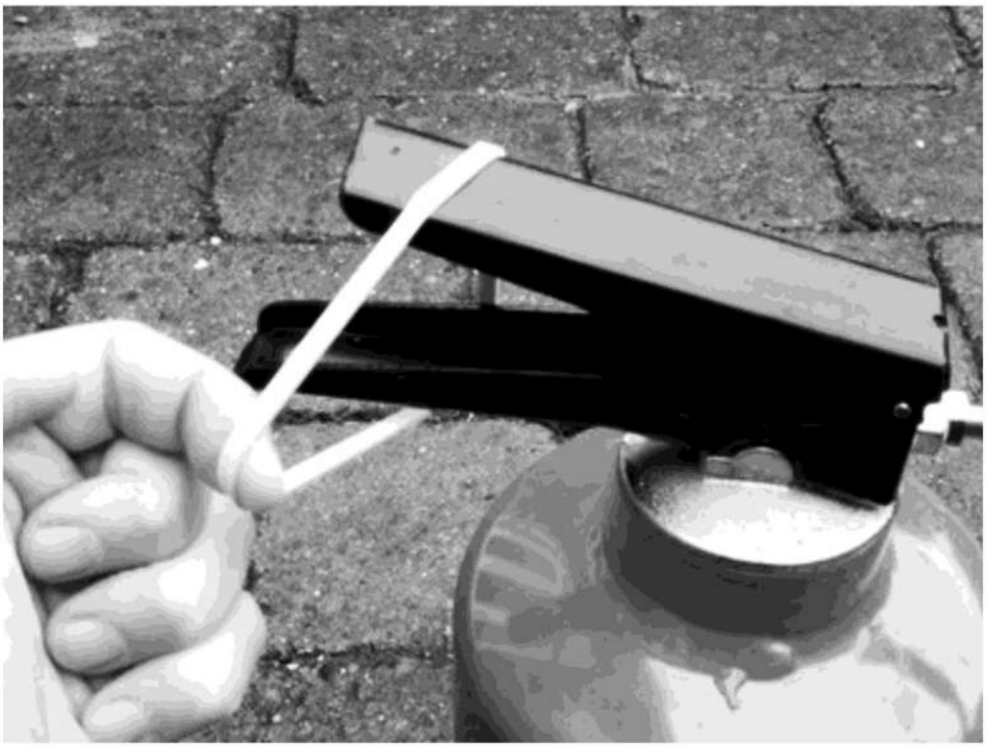


PUMP AIR INTO THE EXTINGUISHER AS FAR AS YOU CAN UP TO THE MIDDLE OF THE GREEN ZONE ON THE PRESSURE GAUGE (NORMALLY AROUND 220PSI / 15 BAR). 200 PSI / 14 BAR IS ENOUGH TO CREATE A POWERFUL JET THROUGHOUT THE WHOLE DISCHARGING PROCESS. BELOW THAT, THE JET WILL EVENTUALLY LOSE POWER AND REACH BEFORE BEING FULLY DISCHARGED.



13. DISCONNECT THE PUMP HEAD

FIRST CLOSE THE RELEASE VALVE BY UNTYING THE OPERATING LEVERS BECAUSE ALTHOUGH THE SCHRADER VALVE SHOULD HOLD BACK THE AIR PRESSURE, IF IT SOMEHOW FAILS THEN YOU WILL SPRAY LIQUID EVERYWHERE.



NOW DISCONNECT THE PUMP HEAD.





14. DISCONNECT THE RECHARGE ADAPTOR

USING AN ADJUSTABLE SPANNER WIND THE HEX BUSH ANTICLOCKWISE TO DISCONNECT IT ALONG WITH THE SCHRADER VALVE.
JOINED TOGETHER THESE MAKE UP WHAT'S CALLED A RECHARGE ADAPTOR.

CAUTION: THIS IS THE LAST CHANCE TO CLOSE THE RELEASE VALVE OR YOU WILL SPRAY LIQUID EVERYWHERE.





15. RECONNECT THE HOSE

**WIND THE HOSE CONNECTOR CLOCKWISE.
TIGHTEN A LITTLE BIT WITH AN ADJUSTABLE SPANNER.**

CAUTION: BE CAREFUL NOT TO ACCIDENTALLY DISCHARGE THE EXTINGUISHER AT THIS POINT. IF YOU ARE CLUMSY THEN SKIP STRAIGHT TO THE NEXT STEP BEFORE YOU RECONNECT THE HOSE, UNLESS YOU ARE ABOUT TO TEST THE EXTINGUISHER.



16. INSERT AND SECURE THE SAFETY PIN

INSERT THE SAFETY PIN.
IF THE PIN IS MISSING YOU CAN PURCHASE SPARES OR IMPROVISE ONE FROM A SMALL METAL BOLT, SCREW OR FLATHEAD NAIL. ALWAYS BLUNT ANY SHARP ENDS.



FINALLY, SECURE THE PIN WITH DUCT TAPE AROUND THE OPERATING LEVERS FORMING A PULL-TAB ON TOP OF THE DISCHARGE LEVER.





IF YOU DON'T WANT TO DRAW ATTENTION TO YOUR EXTINGUISHER THEN USE REAL ANTI-TAMPER PLASTIC TAG SEALS INSTEAD.

TROUBLESHOOTING

UNDOING THE VALVE ASSEMBLY

I CAN'T UNDO THE VALVE ASSEMBLY. IT CAN BE TRICKY ON AN OLD EXTINGUISHER. KEEP TRYING OR ASK SOMEONE TO HELP YOU.

I'VE JUST BENT THE OPERATING LEVERS WHILE TRYING TO REMOVE THE VALVE ASSEMBLY. TRY BENDING THEM BACK IN THE OPPOSITE DIRECTION USING YOUR HANDS OR A MALLET. CHECK THAT THE LEVERS ARE NOT NOW CRACKED OR BROKEN AND THAT THEY STILL DEPRESS AND SPRING BACK.

THREAD SIZING

WHY SHOULD I ORDER A HEX BUSH WITH A 1/4" BSP MALE THREAD WHEN THE ACTUAL DIAMETER OF THE HOSE CONNECTOR IS CLOSER TO 1/2"? THE BSP THREAD STANDARD (BRITISH STANDARD PIPE) BEARS NO RELATION TO THE ACTUAL GREATER DIAMETER OF THE THREAD. A 1/4" BSP THREAD FOR EXAMPLE, HAS A GREATER DIAMETER OF JUST OVER 1/2 AN INCH.

DO I BUY BSP THREADED COMPONENTS LISTED AS BSP TAPER (BSPT) OR BSP PARALLEL (BSPP)? WITHOUT GOING INTO DETAIL ABOUT WHY, TRY TO BUY BOTH MALE AND FEMALE THREADS LISTED AS BSP TAPER (BSPT). A BSPP FEMALE THREAD CAN ALSO WORK BUT IS LESS IDEAL WHEN NOT PERMANENTLY INTERCONNECTED.

CAN I MIX BSP AND THE NORTH AMERICAN 'NPT' THREAD STANDARDS? NO.

I LIVE IN ANOTHER COUNTRY, WHAT THREAD SIZE AND STANDARD DO I NEED? TRY MEASURING THE GREATER DIAMETER OF THE THREAD WITH A RULER AND THEN LOOK UP THE ACTUAL CORRESPONDING THREAD SIZE ONLINE. THERE IS A HIGH CHANCE THAT THE THREAD WILL BE 1/4" / 6.0MM GAUGE. THE COMMON THREAD STANDARD WILL TYPICALLY BE BSP, OR FOR THE US AND CANADA, NPT.

I STILL CAN'T MAKE A RECHARGE ADAPTOR THAT FITS. FOLLOW THE STEPS IN APPENDICES 1 AND 2 FOR ALTERNATIVES.

REPRESSURISING

THE RECHARGE ADAPTOR LEAKS A SMALL AMOUNT OF AIR AND LIQUID DURING REPRESSURISING. FIRST TRY TIGHTENING THE HEX BUSH OR SCHRADER VALVE MORE BUT DON'T OVER-TIGHTEN. IF THERE IS STILL A SMALL LEAK THEN THE THREADS COULD BE WORN, CORRODED, OR HAVE A MINOR COMPATIBILITY ISSUE. TRY A FEW LAYERS OF PTFE TAPE AROUND THE MALE THREADS.

THE RECHARGE ADAPTOR SCREWS INTO THE VALVE ASSEMBLY BUT FEELS A BIT LOOSE. IT DOESN'T FULLY TIGHTEN AND LEAKS SIGNIFICANT AIR AND LIQUID DURING REPRESSURISING. THIS IS PROBABLY A SIGNIFICANT THREAD COMPATIBILITY ISSUE. AS A TEMPORARY SOLUTION TRY WRAPPING SEVERAL LAYERS OF PTFE TAPE AROUND THE MALE THREAD OF THE HEX BUSH. AS YOU TIGHTEN, WITH ENOUGH TAPE IT WILL BUNCH UP TO FORM THE EQUIVALENT OF AN O-RING SEAL WHEN THE HEXAGONAL NUT MEETS THE FACING AROUND THE HOSE CONNECTOR POINT.

THE AIR WON'T GO INTO THE EXTINGUISHER DURING REPRESSURISING. EITHER THE OPERATING LEVERS AREN'T TIED TOGETHER ALL THE WAY OR A VALVE INSIDE THE PUMP IS STUCK, USUALLY TEMPORARILY.

LIQUID FROM THE EXTINGUISHER HAS BACKED UP INTO THE PUMP HOSE. THIS WILL BE DOWN TO A BADLY DESIGNED PUMP. DISCONNECT THE PUMP HEAD AND TRY PUMPING THE LIQUID BACK OUT OF THE HOSE. IF YOU HAVE PAINT ETC STUCK IN THE HOSE, RINSE IT OUT WITH WATER AND PUMP OUT ANY REMAINING RESIDUE. REPEAT IF NECESSARY.

THE PUMP HOSE RUPTURED. YOU BOUGHT A CHEAP PUMP. TRY NOT TO BUY A CHEAP REPLACEMENT IF POSSIBLE. IF THAT'S THE ONLY OPTION THEN TRY PUMPING SLOWLY NEXT TIME TO REDUCE OVERHEATING.

I CAN'T PUMP ALL THE WAY UP TO 200PSI. TRY TAKING YOUR WEIGHT OFF THE GROUND AS YOU PUSH DOWNWARDS OR ASK SOMEONE STRONGER/HEAVIER TO HELP.

THE PUMP HEAD HAS THREADED AND NO LONGER TIGHTENS ONTO THE SCHRADER VALVE. THIS COULD EVENTUALLY HAPPEN EVEN ON A HIGH QUALITY PUMP. TRY FITTING A 'SCHRADER TO PRESTA ADAPTOR'* ONTO THE RECHARGE ADAPTOR AND USE THE PRESTA FITTING ON THE PUMP HEAD INSTEAD. BE EXTRA CAREFUL TO CLOSE THE EXTINGUISHER RELEASE VALVE BEFORE REMOVING THE PUMP HEAD. THE SCHRADER VALVE WILL NO LONGER HOLD BACK THE AIR AND LIQUID BECAUSE THE ADAPTOR DEPRESSES THE VALVE STEM. ALTERNATIVELY, FIT A REPLACEMENT PUMP HEAD.

*** NOT A 'PRESTA TO SCHRADER' ADAPTOR.**

APPENDIX 1

HOW TO MAKE A RECHARGE ADAPTOR FROM A FIRE EXTINGUISHER HOSE

IT'S POSSIBLE TO CONVERT A FIRE EXTINGUISHER HOSE INTO A RECHARGE ADAPTOR. THE ADVANTAGE IS THAT YOU CAN BYPASS ANY CONFUSION ABOUT SIZING THE HOSE CONNECTOR THREAD. IT ALSO AVOIDS THE EXTRA TIME AND COSTS OF THE METHOD IN APPENDIX 2.

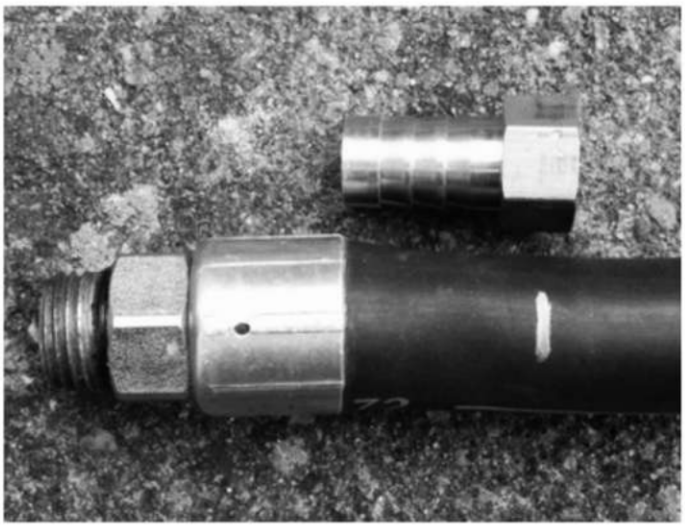
THE DISADVANTAGE IS THAT YOU ARE REPEATEDLY LOADING THE HOSE WITH A HIGH AIR PRESSURE WHICH WAS NEVER ITS INTENDED USE. YOU ALSO DON'T KNOW HOW OLD A HOSE IS UNLESS PURCHASED NEW. YOU NEED TO AT LEAST INSPECT THE HOSE VISUALLY FOR ANY SIGNS THAT THE RUBBER HAS BEGUN TO PERISH OR CRACK. IT'S UNLIKELY THAT THE HOSE WILL RUPTURE AND SPRAY LIQUID EVERYWHERE WHILE REPRESSURISING, BUT OUT OF ALL THE OPTIONS, IT CARRIES THE MOST RISK OF MAKING A BIG MESS.



FOLLOW STEPS 1 - 4

1. MARK AND CUT THE HOSE

SELECT EITHER A 1/4" BSPT FEMALE THREAD X 3/8" OR 1/2" HOSE TAIL END CONNECTOR (THE HOSE ILLUSTRATED LOOKED WIDE SO A 1/2" DIAMETER CONNECTOR WAS CHOSEN). ALIGN THE END OF THE BARB UP WITH THE END OF THE METAL COLLAR ON THE HOSE. MARK A POINT ON THE HOSE ALIGNED TO THE WIDTH OF ONE RAMP OF THE BARB ALONG THE HEX NUT. CUT THE HOSE WITH A HACK SAW.





CHECK THAT THE HOSE TAIL END CONNECTOR IS A SNUG FIT INSIDE THE HOSE. IF NOT, SELECT A DIFFERENT DIAMETER.



2. ADJUST THE LENGTH OF THE HOSE

PUSH THE HOSE TAIL END CONNECTOR ALL THE WAY INTO THE HOSE. THE END OF THE HOSE SHOULD REACH THE HEX NUT. AT THE SAME TIME THE END OF THE BARB SHOULD MEET THE METAL CENTRE OF THE HOSE CONNECTOR.



IF NECESSARY GRIND THE HOSE DOWN WITH SOME EMERY PAPER OR A RASP UNTIL THE BARB MEETS THE METAL CENTRE. BE CAREFUL NOT TO MAKE THE HOSE TOO SHORT.



3. FIT THE HOSE CLIPS

SLIDE TWO 13–20MM HOSE CLIPS ONTO THE HOSE WITH THE SCREW HEADS POSITIONED ON OPPOSITE SIDES SO THAT THEIR EXTRA WIDTH DOES NOT CLASH.

POSITION THE END HOSE CLIP THE WIDTH OF ONE RAMP OF THE BARB FROM THE HEX NUT. WITH A FLATHEAD SCREWDRIVER TIGHTEN THE SCREW IN A CLOCKWISE DIRECTION AS FAR AS IT WILL GO TO SECURE THE CONNECTOR IN PLACE AND FORM A TIGHT AIR SEAL.

THE SECOND CLIP IS NOT THERE TO GRIP THE HOSE ONTO THE CONNECTOR BUT AS AN EXTRA REINFORCEMENT AGAINST AIR PRESSURE. EXTINGUISHER HOSES ARE NORMALLY MADE FROM REINFORCED FUEL LINES WHICH CARRY PRESSURE UP TO 300PSI. THE HOSE SHOULD BE FINE WITHOUT THE EXTRA CLIP BUT IT'S WORTH THE EXTRA MEASURE IN CASE IT IS VERY OLD OR HAS ANY DAMAGE THAT MAY NOT BE OBVIOUS. TIGHTEN THE CLIP ONLY A LITTLE, ENOUGH TO STAY IN POSITION AND NOT SPIN AROUND.



4. FIT THE HEX BUSH AND SCHRADER VALVE

TAKE THE ORIGINAL RECHARGE ADAPTOR. WRAP SOME PTFE TAPE AROUND THE MALE THREAD OF THE HEX BUSH AND THEN WIND IT CLOCKWISE INTO THE 1/4" FEMALE THREAD OF THE HOSE TAIL END CONNECTOR.



WITH AN ADJUSTABLE SPANNER TIGHTEN THE HEX BUSH FURTHER. YOU MAY NEED A SECOND ADJUSTABLE SPANNER TO HOLD THE HEX NUT ON THE HOSE TAIL END CONNECTOR.



THE RECHARGE ADAPTOR IS NOW COMPLETE.

APPENDIX 2

HOW TO FIT A HIGH-PRESSURE SCHRADER TYRE VALVE

IF YOU ARE UNABLE TO MAKE A RECHARGE ADAPTOR THEN AN ALTERNATIVE OPTION IS TO PERMANENTLY FIT A HIGH-PRESSURE SCHRADER TYRE VALVE ONTO THE EXTINGUISHER ITSELF. THE EXTINGUISHER IS THEN PRESSURISED THROUGH THE SCHRADER VALVE RATHER THAN THE RELEASE VALVE WHICH IS KEPT CLOSED THROUGHOUT.

THE SMALL DISADVANTAGE OF THIS METHOD IS THE EXTRA WORK AND REPEAT COST OF BUYING ONE VALVE FOR EACH EXTINGUISHER. YOU ALSO NEED TO BE CONFIDENT DRILLING A NEAT HOLE THROUGH METAL.
SOME OLDER WATER FIRE EXTINGUISHERS HAVE SCHRADER VALVES ALREADY INTEGRATED INTO THE VALVE ASSEMBLY, BUT THESE ARE NO LONGER VERY EASY TO SOURCE.



FOLLOW STEPS 1 - 6

1. PREPARE FOR DRILLING

TAKING AN EMPTY FIRE EXTINGUISHER WITH THE VALVE ASSEMBLY REMOVED, WITH A PEN MARK A POINT NEAR THE TOP OF THE CYLINDER ABOUT 1CM BELOW WHERE IT BEGINS TO CURVE.



MAKE A SMALL BUT WELL-DEFINED DENT IN THE CYLINDER BY STRIKING A CENTRE PUNCH WITH A RUBBER MALLET. THIS IS ESSENTIAL TO ENABLE YOU TO BEGIN DRILLING A HOLE WITHOUT THE DRILL BIT SLIDING OFF.



2. DRILL THE HOLE

WARNING: TO AVOID GETTING METAL FRAGMENTS IN YOUR EYES WEAR SAFETY GLASSES.

SET UP A POWER DRILL WITH A 12MM OR 1/2" DIAMETER HSS DRILL BIT FOR METAL. GRIP THE CYLINDER BETWEEN YOUR KNEES BUT NOT TOO CLOSE TO THE TOP IN CASE THE DRILL SLIPS. POSITION THE DRILL BIT INTO THE DENT AND PUT AS MUCH OF YOUR BODY WEIGHT OVERHEAD AS YOU CAN. DRILL THROUGH ON A MEDIUM SPEED SETTING.

CAUTION: WITHOUT A GOOD DENT, GOOD GRIP WITH YOUR LEGS, AND ENOUGH WEIGHT, THE DRILL WILL GO OFF COURSE WHICH RISKS CAUSING INJURY. IT WILL ALSO LEAVE A DISTORTED HOLE UNABLE TO FORM AN AIR-TIGHT SEAL. ONLY DO THIS STEP IF YOU ARE CONFIDENT. ALTERNATIVELY ASK SOMEONE TO HELP YOU OR FIND A WAY TO CLAMP THE CYLINDER IN POSITION SO THAT YOU CAN MOVE YOUR BODY FURTHER OUT OF THE WAY.

FINISH THE HOLE BY USING SOME COARSE EMERY PAPER OR A FILE TO TAKE OFF ANY METAL BURRS THAT COULD CUT INTO THE VALVE SEAL.





3. DISPOSE OF THE METAL FRAGMENTS

CAUTION: THE METAL FRAGMENTS ARE SHARP AND COULD CAUSE VARIOUS INJURIES TO PERSONS OR HARM TO NATURE, SO DISPOSE OF THEM SAFELY.

EMPTY ANY REMAINING METAL FRAGMENTS OUT OF THE CYLINDER.



DISPOSE OF ALL THE METAL FRAGMENTS.

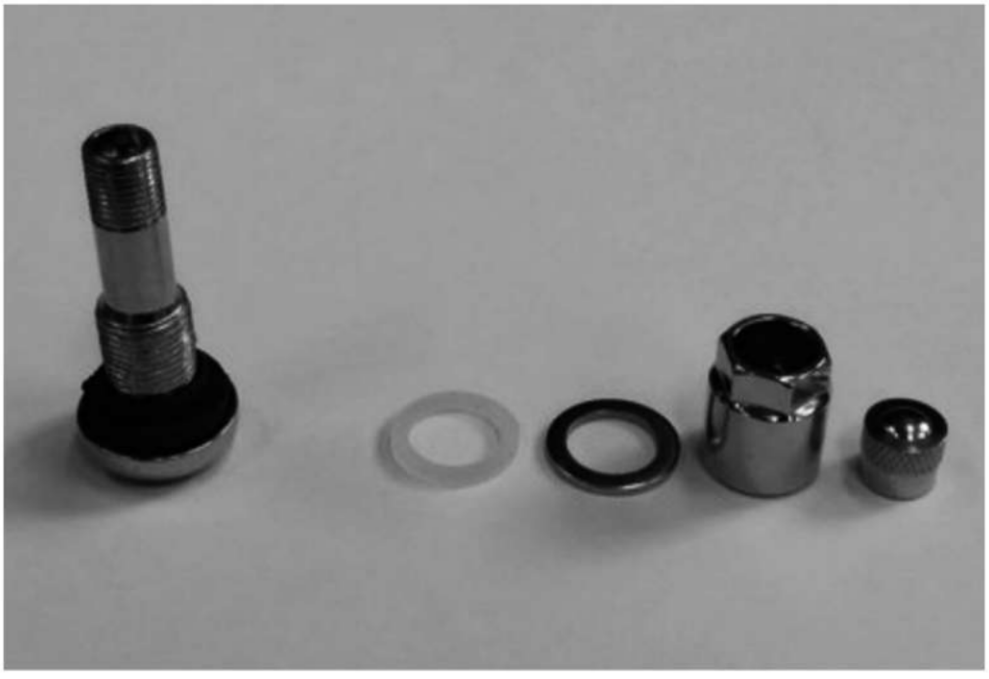


YOU CAN NOW REMOVE YOUR SAFETY GLASSES.

4. DISMANTLE THE SCHRADER VALVE

IN AN ANTI-CLOCKWISE DIRECTION UNSCREW THE VALVE CAP AND NUT. TAKE OFF THE METAL AND PLASTIC WASHERS.





5. POSITION THE VALVE

TIE A SMALL WEIGHT E.G. A SCREW ONTO THE END OF A SHOELACE OR THREAD. DROP THE WEIGHT INTO THE VALVE HOLE AND OUT THROUGH THE HEAD OF THE CYLINDER.





REPLACE THE WEIGHT WITH THE VALVE AND PULL IT UP INTO THE HOLE FROM INSIDE OF THE CYLINDER.





6. FIT THE VALVE

PUT THE PLASTIC AND METAL WASHERS BACK ONTO THE VALVE. THEN WIND ON THE NUT IN A CLOCKWISE DIRECTION. TIGHTLY GRIP THE END OF THE SCHRADER VALVE WITH PLIERS. THEN WITH AN ADJUSTABLE SPANNER TIGHTEN THE NUT. BE CAREFUL NOT TO LET THE VALVE TURN INSIDE THE PLIERS WHICH WILL SCRAPE AND DAMAGE THE THREAD. ALTERNATIVELY USE RUBBER GRIP PLIERS OR PLACE A SMALL PIECE OF OLD INNER TUBE INSIDE THE PLIERS.





PUT THE VALVE CAP BACK ON BY WINDING IT CLOCKWISE. WHEN EVENTUALLY PRESSURISED, FURTHER TIGHTEN THE CAP WITH PLIERS. IT IS A SECONDARY DEFENCE AGAINST AIR/LIQUID LEAKS. THE MODIFICATION IS NOW COMPLETE.



FURTHER INFORMATION

FOR FURTHER ADVICE, OR TO MAKE HELPFUL SUGGESTIONS PLEASE EMAIL:

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