

NORMAC ADHESIVE PRODUCTS INC.



NORMAC

*APPLICATION
GUIDE*



REV.1.12



Application Guide

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Application Areas

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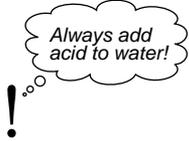


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1.0 GENERAL INFORMATION WHEN USING U-Repair URETHANE GROUT

- 1.1 Metal preparation is, in most cases, accomplished by power tool cleaning using a carbide or aluminum oxide disc to roughen the repair area. For larger areas, grit blasting will be faster and provide better over-all adhesion of the U-Repair to the metal especially in severe (high use) or vacuum service. Refer to fig.1 for substrate to primer compatibility information. Other acceptable adhesives rubber based cements.
- 1.2 For rubber, fabric, PVC, fiberglass, polyurethane or other elastomeric substrates, roughen using a slow speed sander with an aluminum sanding disc of 24-50 grit or a stiff bristle rotating wire brush 1" wide x 4" diameter (25mm x 100mm) or rotating tire rasps attached to an electric drill of 1800 rpm or less. Do not leave any shiny spots or unbuffered areas, as this will lessen adhesion. Clean by using a dry brush followed by NORMAC Cleaning Solvent or suitable degreaser. Always prepare an area larger than the actual repair area. Refer to fig.1 for substrate to primer compatibility information.
- 1.3 For repairs to concrete - surface preparation in most cases can be accomplished by power tool cleaning. For larger areas and vertical surfaces, grit blasting may be easier and more economical than power tool cleaning. Finally, acid etch would be used primarily on horizontal areas, such as floors, or whenever power tool cleaning or grit blasting cannot be used. For blasting, use a dry silica sand, coarse enough to pass through a 16 mesh screen. After blasting, remove sand, etc. by brushing and vacuuming. Acid etching is done with a solution of muriatic acid and water (1 part muriatic and 2-4 parts water) or for a chloride free solution, use 85% phosphoric acid diluted with 2-3 parts water. Never add water to acid. Always add acid to water. Refer to fig.1 for substrate to primer compatibility information.



U-REPAIR 60SL 60NS		Substrate						
		Metal	Rubber	Fibreglass	Polyurethane	PVC	Fabric	Concrete
Primer	600R	Red	Red	Red	Green	Green	Red	Red
	900R	Orange	Orange	Orange	Green	Green	Red	Red
	NR-8400	Red	Green	Red	Green	Orange	Red	Red
	NR-9500	Green	Orange	Green	Green	Orange	Red	Red
	XL2000	Red	Orange	Orange	Orange	Green	Red	Red
	XL4001	Red	Orange	Orange	Orange	Green	Red	Red
	EP100	Green	Red	Green	Orange	Orange	Green	Green
	EP200	Green	Red	Green	Orange	Orange	Green	Green

Green Recommended
 Orange Acceptable
 Red Incompatible

Substrate to Primer Compatibility Cross Reference Chart

Fig. 1



Eye Protection
& Ventilation!



- 1.4 Damp or wet substrates should be dried thoroughly prior to cementing or grouting. Any chemical residue should be scraped and washed off the repair surface. Should oil or grease be present, wash using a clean rag moistened with NORMAC solvent/cleaner or suitable degreaser. Do not soak repair area, allow to dry before applying cement or grout.
- 1.5 U-Repair Kits should be stored in a dry area, out of sunlight. U-Repair is low temperature sensitive. Proper storage temperature is above 20°C (68°F) and below 30°C (86°F).
- 1.6 U-Repair Part "A" (resin) is 100% solids polyurethane and therefore sensitive to low temperature, meaning it can "freeze" into a solid mass. Simply reheat the Part "A" container until the resin becomes clear and honey-like in consistency. Make sure the temperature of the Part "A" prior to mixing in the Part "B" is between 20°C (68°F) and below 30°C (86°F). The higher the temperature of the Part "A", the shorter the pot life.
- 1.7 U-Repair is a fast setting urethane repair putty. It gels rapidly and sets in about 8 to 10 minutes. For good intercoat adhesion apply successive coats within 2 hours. After 2 hours simply roughen the U-Repair as above and apply another coat. Best adhesion is obtained using the adhesives mentioned above.
- 1.8 At ambient temperatures 21°C (70°F) U-Repair will be sufficiently cured in 2 hours to allow for buffing. Use a 36 or 50 grit sanding disc for this operation.

NORMAC 750ml x 750ml U-REPAIR INSTRUCTIONS

2.0 Description

The Normac 750ml x 750ml Cartridge is the largest dual cartridge available. There is a total of 1590g (3.5lbs) of material in one 750ml x 750ml cartridge. This cartridge must be dispensed using a pneumatic dispenser model number PPA1500 complete with an air manifold for material flow control. The 750ml x 750ml cartridge uses a 12mm (1/2") diameter x 24 element static mixer.

2.1 Packaging

The Normac 750ml x 750ml cartridge is packaged in sealed, plastic bags containing 1 x 12mm (1/2") diameter x 24 element static mixer either individually or a case of 6.

2.2 Application

The Normac 750ml x 750ml cartridge must be applied using an air driven pneumatic dispenser with an air manifold to regulate the flow of material. The air manifold comes separate and must be attached at the air inlet of the pneumatic dispenser located at the bottom of the handle. Once assembled set the air regulator to 5.5 bar (80psi). It is advisable to use an airline moisture trap at the air source to prevent water from entering the dispenser.

2.3 Instructions

- 2.3.1 Prepare the surface of the conveyor belt by cutting away any loose rubber. Use a slow speed sander with a 175mm (7") diameter 24 grit aluminum oxide sanding disc to roughen the area to be repaired. Sharp edges should be chamfered as much as possible for best adhesion results. Clean the repair area by brushing. Remove any oil or grease contamination with a suitable, non-oil based degreasing solvent such as Trichloroethylene, Methyl Ethyl Ketone (MEK) or other suitable solvent. Do not soak the repair area. See Normac U-Repair Application Guide on the various methods of surface preparation and repair methods.
- 2.3.2 Depending upon which priming/adhesive system you are using begin applying in accordance with manufacturer's instructions.
- 2.3.3 To assemble the dispensing gun with a cartridge cut open one of the plastic bags which contains 1 x 750ml x 750ml cartridge with retaining nut and 1 x 24 element static mixer.
- 2.3.4 Before assembling the static mixer you must cut back the dispensing tip with a sharp knife to the third or fourth step to allow for higher material flow, if not the original setting will dispense too slowly and the mixed material will set-up within the mixer and you will have to replace it with a new one.

- 2.3.5 Keeping the cartridge upright unscrew the black plastic retaining nut from the dispensing end. Remove the two black plastic half-moon seals. With the plastic seals removed attach the static mixing tube by seating it onto the cartridge outlet followed by the retaining nut which screws onto the threaded end of the cartridge. Tighten the nut firmly by hand or with adjustable pliers. If material leaks at this point during dispensing retighten the nut.
- 2.3.6 Always test the pneumatic dispenser by using both forward and backward motions before using to insure it is in proper working condition.
- 2.3.7 Keeping the cartridge and dispenser upright place assembled cartridge into the dispensing gun with the metal frame of the dispensing gun between the plastic clip at the mixer end of the cartridge.
- 2.3.8 Attach the air supply hose to the air manifold. Ensure that the air pressure regulator is set to 5.5 bar (80psi). Squeeze the dispensing gun trigger until you achieve material flow through the mixer. Dispense a small amount into a waste container as the first bit of material isn't properly mixed. Immediately begin dispensing the material onto the repair area.
- 2.3.9 If you cannot continuously dispense the U-Repair material it will harden up in the mixer. Simply relieve the dispensing gun pressure on the cartridges, remove the cured mixer and attach another as per above. It may be necessary to remove any cured or semi-cured material from the cartridge openings so that you do not get any plugging that could impede either Part A or Part B from entering the mixer.
- 2.4.0 After 2 hours curing time at 21C (70F) the material may be ground or sanded.
- 2.4.1 For storage you can either leave the mixer tube attached or reinsert the green plastic dual seals into their respective openings. To reuse, remove the mixer or plastic seals, clean any cured material out of either Part A or Part B opening, and attach a new mixer, tighten the nut and begin dispensing as above.

NORMAC U-Repair ON CONVEYOR BELTING

3.0 TOP COVER OR CARRYING SIDE REPAIRS (Not Through the Conveyor Belt)

- 3.1 Use *Normac U-Repair* Urethane Repair Material when there are gouges, worn areas, cuts or tears in either rubber cover, but not through the conveyor belt.
- 3.2 Cut away any loose rubber and skive or feather the good rubber at a 30°-45° angle down to the fabric.
- 3.3 Using either the rotating wire brush or sander, roughen all areas to be repaired allowing 50mm to 75mm (2" to 3") beyond the repair area.
- 3.4 Clean with dry brush and damp wipe with cloth using *Normac Cleaning Solvent*.
- 3.5 Mix necessary amount of applicable primer as in Fig.1 and apply 1st coat to entire area to be repaired. Allow to dry the required amount of time, usually 1 hour minimum.
- 3.6 Apply 2nd coat of applicable primer as in Fig.1. When the primer is tacky, begin applying the *Normac U-Repair* Repair Material being careful not to trap air. Continue layering the grout or putty as required until it is level with or slightly higher than the existing substrate or surface.
- 3.7 After 2 hours curing at room temperature, you may sand the repair area flush with the existing rubber cover. You may apply *Normac 900R* or *equivalent adhesive* over the *Normac U-Repair* to act as a sealant.
- 3.8 In most cases the repair area can be put into service after a total of 3 to 4 hours curing time at room temperature.



4.0 EDGE REPAIRS

- 4.1 The same procedure is used for preparation of the conveyor belt as in Top Cover Repairs.
- 4.2 Prior to applying the second coat of *Normac 900R* or *equivalent adhesive* as in 3.6, use a length of polyethylene board or similar material clamped to the edge of the conveyor belt you are repairing. This board will act as a dam or mould when you apply the *Normac U-Repair* repair material to the edge repair. Make sure it is long enough and higher than your repair area.
- 4.3 After this step proceed as in 3.7 of Top Cover Repairs.
- 4.4 Once you have let the *Normac U-Repair* cure for at least 30 minutes, you can strip off the edge mold piece. Touch up with sander for better finish if desired and coat with *Normac 900R* or *equivalent adhesive*.



- 5.0 LONGITUDINAL SLIT REPAIRS (Not Through the Conveyor Belt)**
- 5.1 These repairs can be short or the entire length of the conveyor belt. Some conveyor belts may only have a down-time of 8 hours per day or may only shut down on the weekend. The location, width of the repair and down-time as well as other factors such as working temperatures and accessibility will help determine the number of feet or meters your crew can finish in a given time frame.
- 5.2 Using a sharp knife, V out the slit to a 30° - 45° angle on both sides.
- 5.3 Where the longitudinal damage is wider than a slit, approx. 25mm-50mm (1"-2") simply feather each running edge of the rubber back to where good adhesion between original top cover and fabric exists.
- 5.4 Roughen rubber and fabric as previously described with an electric wire brush or slow speed sander.
- 5.5 Clean with dry brush and moistened cloth of *Normac Cleaning Solvent*.
- 5.6 Mix and apply the applicable primer as in Fig.1 to the entire repair area and let dry one hour.
- 5.7 Apply 2nd coat of applicable primer as in Fig.1. When this becomes tacky, begin applying the mixed portions of *Normac U-Repair Urethane Repair Material*.
- 5.8 Allow to dry or cure for a minimum of 2 hours at room temperature before sanding or releasing conveyor belt for use.
- 5.9 To ensure a good bond to previous repair work, simply prepare cured grout by wire brushing or sanding as you would for the rubber/fabric preparation. Apply the applicable primer as in Fig.1 as in 5.6 and continue with steps 5.7 through 5.9.



U-Repair has been proven effective in even the most difficult operating conditions.

Fig. 2



**6.0 LONGITUDINAL SLIT REPAIRS
(Not Through the Conveyor Belt)**

Conditions

Holes or slits through belt not exceeding 1/4 of the width of the conveyor belt. Larger holes or slits require re-splicing. Longitudinal slits through belting can be repaired up to any length.

Procedure

- 6.1 Conveyor belt should have its tension released before repair is made. This will prevent a ripple effect in the repair area.
- 6.2 Determine the number of plies or layers of fabric of the conveyor belt. Allow 1" or 25mm per ply from tear or hold on the width and length.
- 6.3 Strip out necessary rubber from the repair area.
- 6.4 Skive or feather edge of rubber top cover with a sharp knife on a 30° - 45° angle to 1st fabric layer.

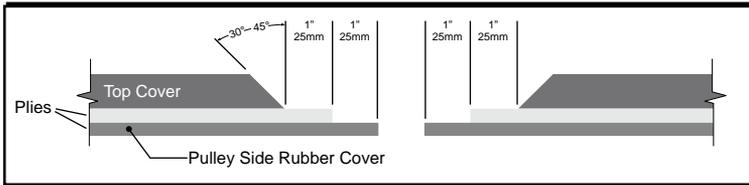


Fig. 3

- 6.5 Using a ply knife cut layers of ply or fabric according to the minimum of 1" or 25mm per ply formula away from damaged area.
- 6.6 Remove plies of fabric by lifting along cut edge with a blunt screw driver or ply lifter, then pulling exposed edge up with a pair of pincers and strip out fabric.
- 6.7 Cut any jagged areas of the hole or slit so that it is smooth and easy to prepare for good adhesion.
- 6.8 Roughen all areas, preferably with an electric rotating wire brush.
- 6.9 Clean with a dry brush. Use Normac Cleaning Solvent to wash any oil or grease.
- 6.10 Apply the 1st coat of applicable primer as in Fig.1 to the entire repair area. Allow to dry minimum one hour.
- 6.11 During this drying time, cut out appropriate sized pieces of rubberized repair fabric that will fit the fabric areas of the conveyor belt requiring replacement.

Not to exceed 1/4 belt width.

!

SAFETY FIRST!

!





Use fabric
for strength



- 6.12 Begin applying 2nd coat of applicable primer as in Fig.1 to 1st fabric repair area and replacement fabric. Stitch together when tacky (5-10 minutes drying time). Trim any excess replacement fabric. Continue applying the replacement fabric until all fabric areas are filled in.
- 6.13 Apply 2 nd coat of applicable primer as in Fig.1 to fabric and bevelled rubber areas as well as onto the pulley side of the repair area.
- 6.14 When 2nd coat of applicable primer as in Fig.1 is tacky, begin applying the *Normac U-Repair* urethane grout in layers up to original cover thickness. It is advisable to leave *Normac U-Repair* thickness of 1mm less than original cover to prevent anything from working up.
- 6.15 Allow to dry for 3-4 hours, sand if necessary and seal with mixed *Normac 900R* or equivalent adhesive. Always use fabric to repair a hole through the belt as this will add a considerable amount of strength to the repair.

7.0 NORMAC U-REPAIR ON METAL CLIP SPLICES

Normac U-Repair has been used successfully to cover exposed metal clip joints to prevent premature wear and tear, by protecting conveyor belt components such as belt scraper blades, rollers, pulley laggings, etc. from excessive wear and tear that can be caused by these metal clips.

Procedure

- 7.1 Follow manufacturer's recommendations for installation of the clip splice with one exception. Remove the top cover down to the first ply where the clips would otherwise be bolted through the conveyor.
- 7.2 The top cover should be removed a minimum of 1" back of the clip.
- 7.3 Bevel both edges of cut rubber 30° to 45° angle.
- 7.4 Roughen exposed fabric and beveled rubber with wire brush or slow speed sander.

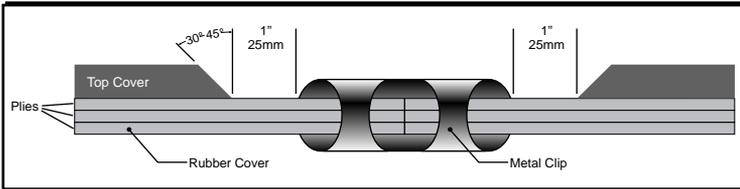


Fig. 4

- 7.5 Align ends of belt and install clip splice in accordance with manufacturers instructions.
- 7.6 Once clip splice is complete, roughen metal clips for good adhesion.
- 7.7 Clean entire area with a dry brush. Remove any grease or oil with *Normac Cleaning Solvent*.
- 7.8 Apply primer of 1st coat of applicable primer as in Fig.1 to entire area. Allow to dry a minimum of one hour.
- 7.9 Apply 2nd coat of applicable primer as in Fig.1 and follow mixing and application instructions for *Normac U-Repair*.



8.0 NORMAC U-REPAIR ON STEEL CABLE CONVEYOR BELTS

Conditions

When the damage is all the way through the conveyor belt use fabric on both sides of cut to add strength to the repair.

Procedure

8.1 Depending upon the type of damage you will encounter, follow these examples of preparation.

8.2 WORNAREA

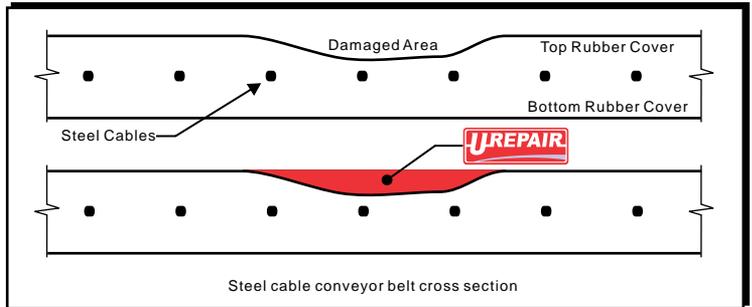


Fig. 5

Identify your repair type
O_o!

7.3 CUT DAMAGE

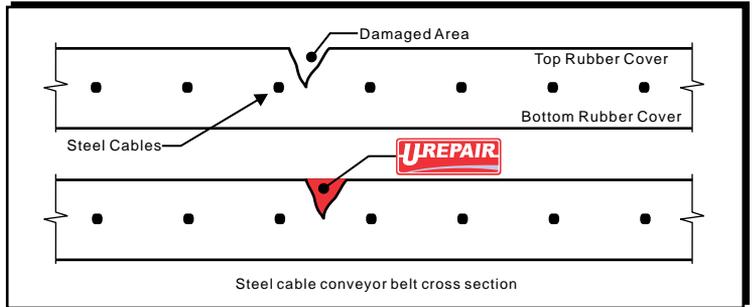


Fig. 6



7.4 STEEL CABLE PULLED OUT

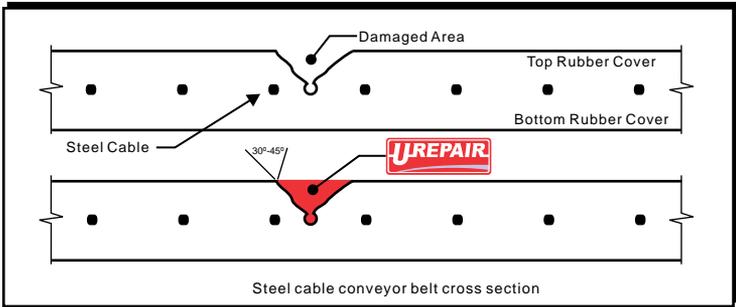


Fig. 7

7.5 HOLE THROUGH BELT

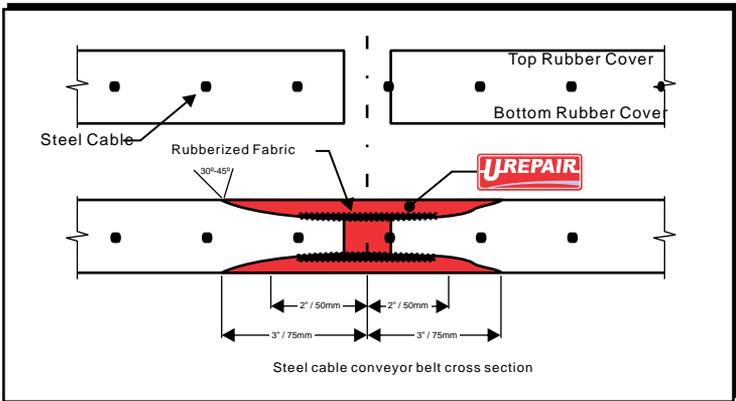


Fig. 8

Use fabric on both sides



7.6 CUT CABLES (UPTO 3)

3 Cables maximum
!!

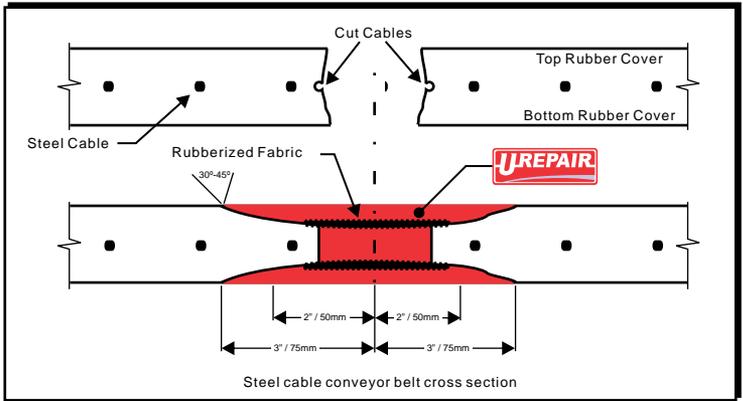


Fig. 9



9.0 REPAIRING RUBBER OR URETHANE LININGS

Examples of the above are pulley laggings, rubber lined chutes and hoppers, pump linings, off-road tires and other process equipment that utilizes an elastomeric lining.

- 9.1 Cut out and remove all loose rubber or urethane back to where you still have good adhesion to substrate.
- 9.2 Using a sharp knife, bevel the edges of your repair on a 30° - 40° angle.
- 9.3 Prepare any exposed metal or concrete by sandblasting or power tool cleaning.
- 9.4 Prepare bevelled edges of the urethane or rubber liner by sanding or electric wire brush. Prepare an area 1" (25mm) to 2" (50mm) beyond the repair area to ensure good bonding at repair edge.
- 9.5 Clean entire area with dry brush. *Normac Cleaning Solvent* clean any oil or grease.
- 9.6 Apply 1st coat of applicable primer as in Fig.1 to substrate and repair areas. Let dry a minimum of one hour.
- 9.7 Apply 2nd coat of the applicable primer as in Fig.1 to substrate when tacky, begin applying the *Normac U-Repair*.
- 9.8 Depending upon the size of the repair area, you may wish to do only part of the repair at one time. Simply apply the second coat of applicable primer as in Fig.1 to only the areas you wish to grout. Continue until the entire area is filled. For thick repairs it is best to layer the *Normac U-Repair* in 1/4" increments.
- 9.9 Allow to dry minimum 2 hours before sanding. For lining repairs under immersion allow to cure 18 hours prior to putting tank back into service. For lining repairs under vacuum or abrasive agitation, allow to cure for 24 hours prior to putting tank in service.

PREP IS CRITICAL!



Be sure to enquire about other Normac products like U-Spray 100% Solids Sprayable Polyurethane coating system.
Fig. 10





Just some of
the ways you
can use U-Repair



Normac U-Repair Urethane Repair System can be used to solve many elastomeric repair problems. Below is a representative list of applications for *Normac U-Repair*.

Conveyor belt repairs - edge damage, worn top and bottom covers, longitudinal slits.

Covering of conveyor belt clip splices.

Pulley lagging repairs.

Pulley lagging field joints.

Repair of urethane or rubber covered rollers.

Rebuilding flights on flexible edged conveyor belting.

Rubber lining repairs such as in chutes and hoppers.

As a fill-in putty between rubber or urethane sheeting.

Tank lining repairs of rubber, PVC, fiberglass or urethane lined vessels.

Ball mill repairs to rubber liner bars.

Repairs to lined pumps, impellers or valves.

As a lining for pumps or valves.

Repair off-highway vehicle tires.

Repair amusement park ride tubes, floats, bumper cars, paddle boats, etc.

As a sealant on conduit entering electrical boxes in heavy wash down areas such as breaker buildings in power plants.

Repair or line waste or waste water equipment.

Repair rubber expansion joints on various process equipment.

Repair small holes on chutes or hoppers, especially where a flammable material such as coal is being processed and where welding and burning is not allowed.

Make notes for future reference



Ask us about our informative instructional videos!



Dealer

