

KEITH® WALKING FLOOR KFD INSTALLATION INSTRUCTIONS

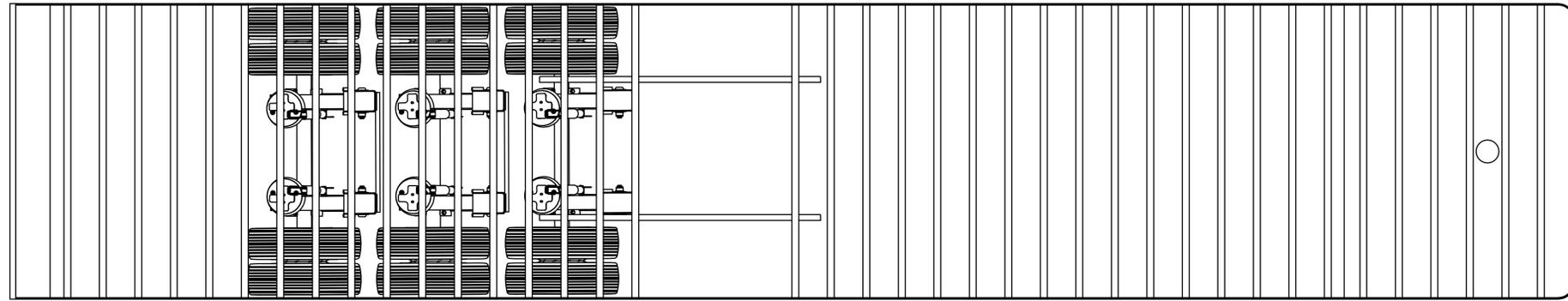


FIGURE 1: CENTER FRAME TRAILER WITH DRIVE GAP

REAR END
UNLOAD END

FRONT END
LOAD END

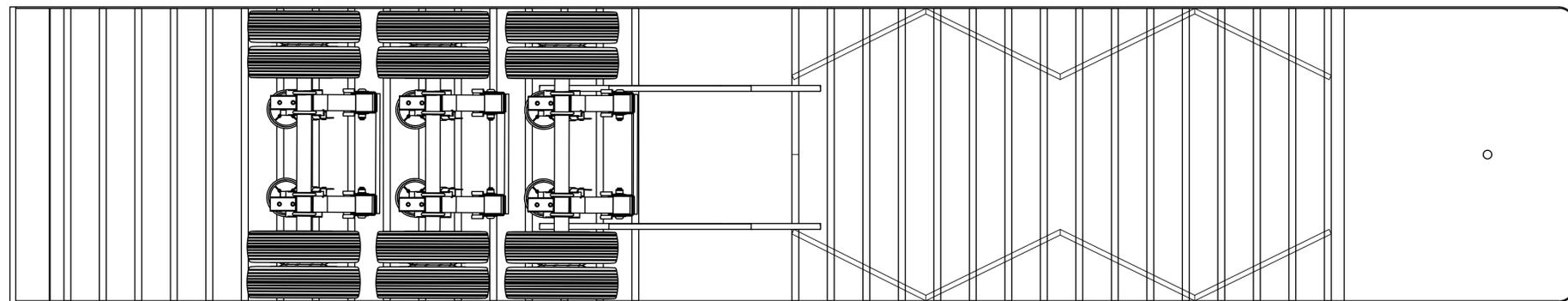


FIGURE 2: CROSS-MEMBER BRACING INSTALLED AND CROSS MEMBERS REMOVED FOR DRIVE GAP (BRACING PREVENTS TRAILER FROM TWISTING OR WARPING.)

REAR END
UNLOAD END

FRONT END
LOAD END

TRAILER PREPARATION

1. ENSURE THAT THE TRAILER IS STRAIGHT TO ALLOW FOR PROPER PARALLEL MOVEMENT OF THE SLATS. A PIECE OF FLOORING CAN BE USED TO SIGHT DOWN THE TRAILER TO DETERMINE STRAIGHTNESS.
2. THE CROSS-MEMBERS ON WHICH THE SUB-DECK MOUNTS MUST BE LEVEL. SINCE THE FRICTION BASED PRINCIPLE OF THE *WALKING FLOOR®* SYSTEM REQUIRES A FLAT FLOOR, MAKE CORRECTIONS IF NEEDED.
3. INSTALLING BRACING AS SHOWN IN FIGURE 2 IS RECOMMENDED. IF THE TRAILER HAS FRAME RAILS RUNNING THE FULL LENGTH, THEN BRACING IS NOT REQUIRED. FLAT BAR OR STEEL ANGLE CAN BE USED FOR BRACING. IF FLAT BAR IS USED, MAKE A CROSS-BRACING, BECAUSE FLAT BAR WILL EASILY BUCKLE UNDER COMPRESSION. IF STEEL ANGLE IS USED, ENSURE THAT THERE IS ENOUGH WHEEL CLEARANCE. INSTALL BRACING TO THE DRIVE OPENING. WELD OR BOLT THE BRACES TO EACH INTERSECTING CROSS-MEMBER.
4. IF NECESSARY, REMOVE CROSS-MEMBERS WHERE THE DRIVE WILL BE INSTALLED. A GAP OF 1450mm MINIMUM IS REQUIRED. SEE PAGE 5 FOR MORE DETAILS ABOUT DRIVE INSTALLATION AND LOCATION. THE DRIVE SHOULD BE INSTALLED IN THE CENTER OF THE TRAILER, JUST BEFORE THE AXELS.

INTRODUCTION

THIS MANUAL EXPLAINS PROCEDURES FOR INSTALLING THE KEITH® KFD SERIES UNLOADING SYSTEM. MANY VARIABLES AFFECT THE INSTALLATION, BUT THE GENERAL PROCESS REMAINS CONSTANT.

DETAILS OF THE INSTALLATION VARY ACCORDING TO TRAILER FEATURES, KIT SELECTIONS, AND INSTALLER PREFERENCES. OPTIONAL SETS OF INSTRUCTIONS ARE GIVEN FOR SOME OPERATIONS TO ALLOW FOR FLEXIBILITY.

INSTALLATION TIME VARIES BETWEEN 35 AND 100 HOURS, DEPENDING UPON THE EXPERIENCE OF THE INSTALLER AND THE ADAPTABILITY OF THE TRAILER. ONE PERSON WITH WELDING SKILLS CAN COMPLETE THE ENTIRE INSTALLATION.

IF THE TRAILER IS NOT YET BUILT, THERE ARE SOME TRAILER PREPARATIONS THAT WILL SAVE TIME AND EFFORT.

AN EFFICIENT INSTALLATION REQUIRES APPROPRIATE TOOLS AND ACCESSIBLE MATERIALS. A LIST OF TOOLS CAN BE FOUND ON THE LAST PAGE OF THIS DOCUMENT.

THE KEITH® KFD SERIES OWNER'S MANUAL CONTAINS MORE DETAILED INFORMATION ABOUT THE SYSTEM AND OPERATION PROCEDURES.

DIRECT ANY QUESTIONS TO KEITH MFG. CO. OR ONE OF OUR INTERNATIONAL OFFICES.

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SCALE: VARIES SHEET 1 OF 8 DRAWN BY: EW

DATE: 12/21/2015 APPRVD BY:

TRAILER PREPERATION AND BRACING

KFD INSTALLATION INSTRUCTIONS DWG NUMBER: D-90309 A

CROSS-MEMBER PREPARATION AND MODIFICATION

CROSS-MEMBERS FUNCTION AS SUPPORT FOR THE SUB-DECK AND THE CROSS-MEMBER'S FLANGES PREVENT THE SLIDE BEARINGS FROM MOVING.

1. THE TOP OF THE CROSS-DRIVE SHOES SHOULD BE LEVEL WITH THE TOP OF THE FLOOR BEARINGS INSTALLED ON THE SUBDECK. SEE PAGE 4 FOR DETAILS. IF THIS IS NOT THE CASE, CONTACT KEITH OR ONE OF THE INTERNATIONAL OFFICES FOR INSTRUCTIONS ON SHIMMING THE DRIVE.

2. CHECK CROSS-MEMBER FLANGE WIDTH FOR PROPER BEARING FIT. A SELECTION OF DIFFERENT BEARINGS THAT FIT VARYING FLANGE SIZES ARE AVAILABLE.

3. REMOVE CROSS-MEMBERS TO CREATE AN ADEQUATE GAP FOR THE DRIVE UNIT. THE DRIVE UNIT SHOULD BE POSITIONED IN THE MIDDLE OF THE TRAILER, CLOSE TO THE AXELS.

4. REPOSITION CROSS-MEMBERS IF NECESSARY. THE REARMOST CROSS-MEMBER SHOULD BE MOUNTED A MINIMUM OF 450MM INSIDE THE TRAILER DOORS. THE FOREMOST CROSS-MEMBER SHOULD BE ABOUT 450MM AWAY FROM THE FRONT WALL.

NOTE: HOLES FOR THE HYDRAULIC TUBING SHOULD BE MADE THROUGH CROSS-MEMBERS BEFORE THEY ARE MOUNTED ON A NEW TRAILER. SEE FOLLOWING PAGE FOR DETAILS.

BAFFLE PLATE INSTALLATION

A BAFFLE PLATE EXTENDS FORWARD FROM THE DOOR THRESHOLD TO PREVENT MATERIAL FROM SIFTING THROUGH THE FLOOR WHEN SLATS ARE IN THE FORWARD POSITION.

1. DETERMINE THE DIMENSIONS OF THE BAFFLE PLATE (FIGURES 4 & 5). THE THICKNESS DEPENDS ON THE TYPE OF LOAD. FOR LIGHT MATERIALS (E.G. SAWDUST), USE 5mm PLATE. 6mm PLATE IS RECOMMENDED FOR HEAVY, ABRASIVE MATERIALS (E.G. SOLID WASTE). THE PLATE BENDS DOWN 300MM INSIDE THE CLOSED DOOR, LEAVING AN OPENING SO THAT MATERIAL WILL NOT BUILD UP UNDERNEATH THE SLATS. BAFFLE PLATE HEIGHT WILL VARY DEPENDING ON WHETHER THE 6mm PLASTIC WEAR STRIP OR THE 3mm STAINLESS STEEL STRIP IS TO BE INSTALLED ON TOP OF THE BAFFLE PLATE. IF USING THE 6mm PLASTIC STRIP, THE TOP OF THE BAFFLE PLATE MUST BE 3mm BELOW THE TOP OF THE CROSS-MEMBERS. IF USING THE STAINLESS STEEL WEARSTRIP, THE BAFFLE PLATE MUST BE LEVEL WITH THE TOPS OF THE CROSS-MEMBERS.

2. CUT AND FORM THE BAFFLE PLATE TO THE PROPER DIMENSIONS.

3. INSTALL THE BAFFLE PLATE BY WELDING THE PLATE IN POSITION AND THEN GRINDING WELDS FLAT. ENSURE IT IS AT THE CORRECT LEVEL WITH REGARD TO THE CROSS-MEMBERS.

SIDE SEAL SELECTION

THE SIDE SEAL IS A NON-MOVING FLOOR SLAT THAT FILLS THE GAP BETWEEN THE MOVING FLOOR SLATS AND THE SIDE WALLS. SEVERAL OPTIONS ARE AVAILABLE. A SEAL IS NEEDED BETWEEN THE MOVING FLOOR SLATS AND THE SIDE SEAL, SO SOME OPTIONS REQUIRE THE USE OF ONE DOUBLE SEAL SLAT.

1. USE FIGURE 6 TO DETERMINE SIDE SEAL DIMENSIONS.

SIDE SEAL GAP WIDTH ('B') IS THE DISTANCE MEASURED FROM THE OUTERMOST FLOOR SLAT TO THE SIDE WALL.

2. USE FIGURES 7(a-c) TO FIND A FEASIBLE SIDE SEAL OPTION.

THERE ARE A VARIETY OF WAYS TO MAKE SIDE SEAL. SELECT THE OPTION THAT BEST SUITS YOUR NEEDS AND ABILITIES.

3. DETERMINE IF YOUR SIDE SEAL NEEDS SUPPORT.

IF THE SIDE SEAL NEEDS SUPPORT, DETERMINE WHAT MATERIALS ARE NEEDED AND PREPARE THEM TO BE INSTALLED ALONG THE WALLS OF THE TRAILER ALONG WITH THE SUBDECK. MAKE SURE THE SIDE SEAL WILL BE SUPPORTED OVER THE DRIVE GAP.

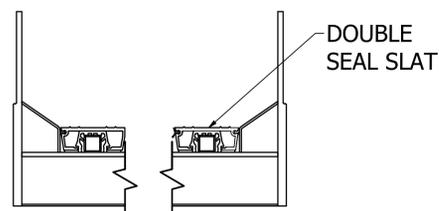


FIGURE 7a: FORMED PIECE SIDE SEAL

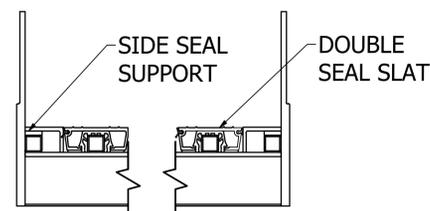


FIGURE 7b: ANGLE IRON OR ALUMINUM EXTRUSION SIDE SEAL

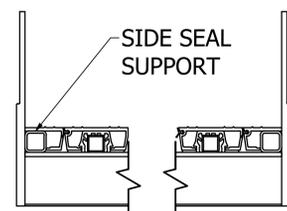


FIGURE 7c: RIPPED SLAT SIDE SEAL

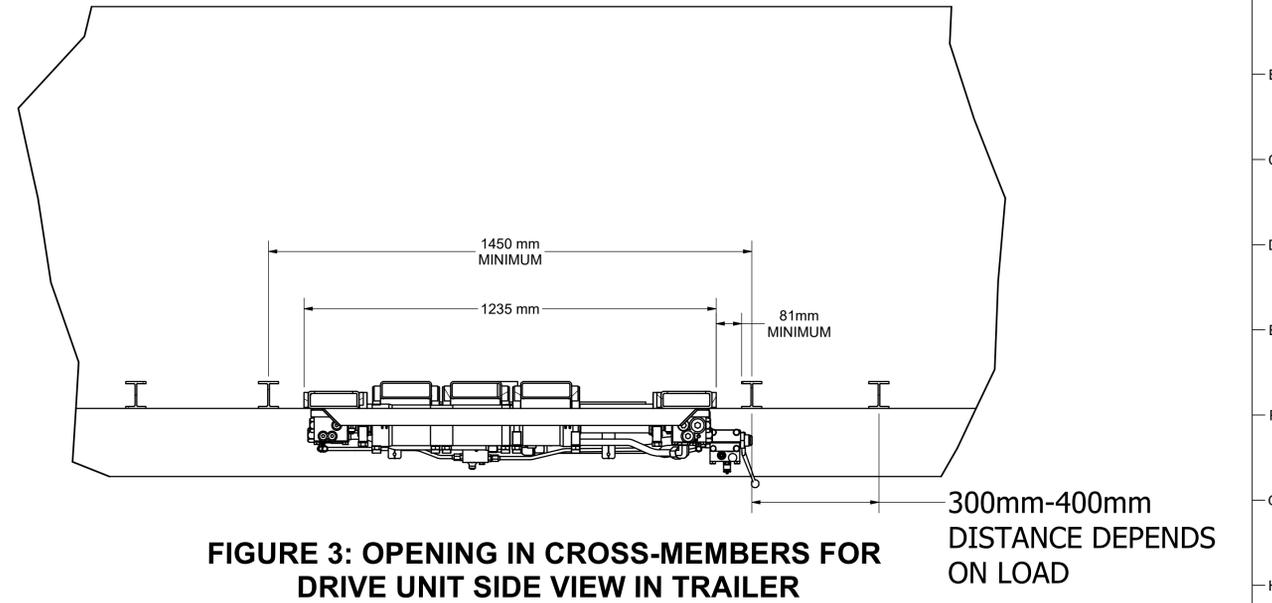


FIGURE 3: OPENING IN CROSS-MEMBERS FOR DRIVE UNIT SIDE VIEW IN TRAILER

300mm-400mm
DISTANCE DEPENDS
ON LOAD

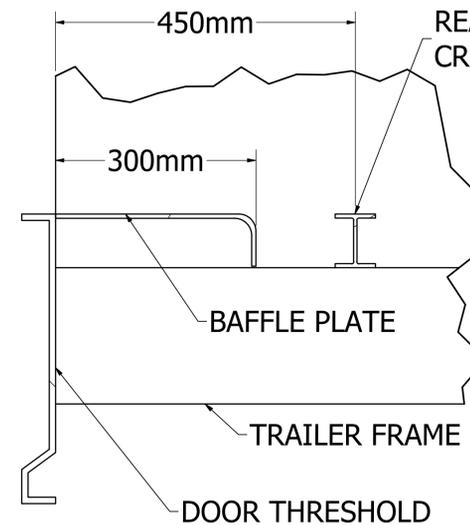


FIGURE 4: BAFFLE PLATE FOR STAINLESS STEEL WEARSTRIP

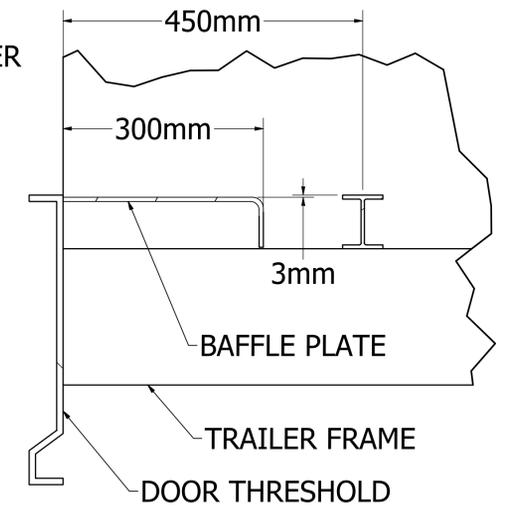


FIGURE 5: BAFFLE PLATE FOR PLASTIC WEARSTRIP

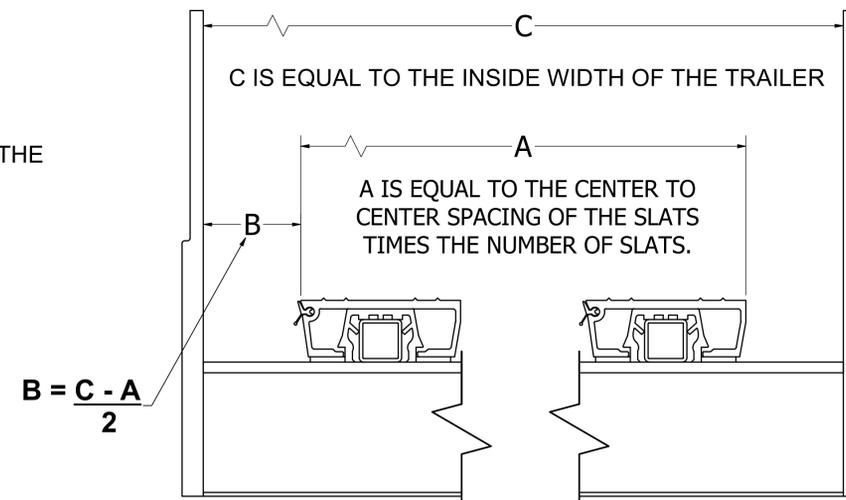


FIGURE 6: SIDE SEAL SIZING

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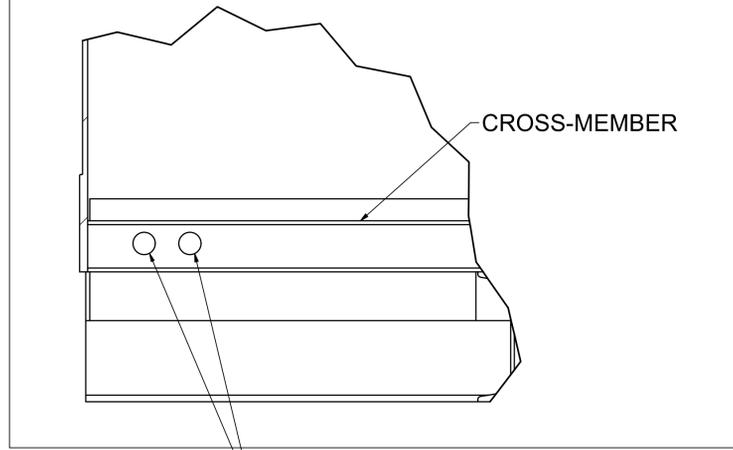
SCALE: VARIES SHEET 2 OF 8 DRAWN BY: EW

DATE: 12/21/2015 APPRVD BY:

CROSS-MEMBER PREPERATION AND MODIFICATION

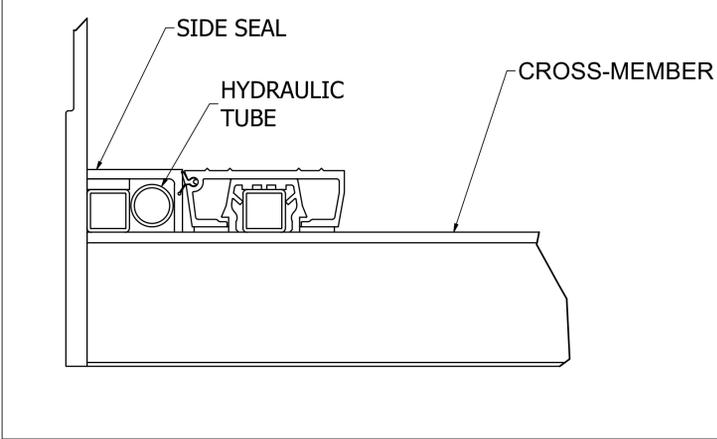
KFD INSTALLATION INSTRUCTIONS DWG NUMBER: D-90309 A

FIGURE 8: OPTION 1

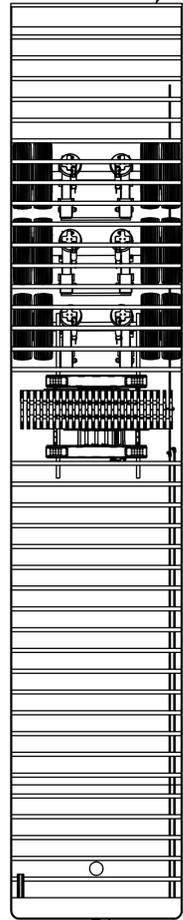


DRILL HOLES TO PLACE A RUBBER GROMMET FOR A 25mm HYDRAULIC TUBE. INSTALL A RUBBER GROMMET ON EACH HOLE IN EACH CROSS-MEMBER.

FIGURE 9: OPTION 2



REAR OF TRAILER



FRONT OF TRAILER

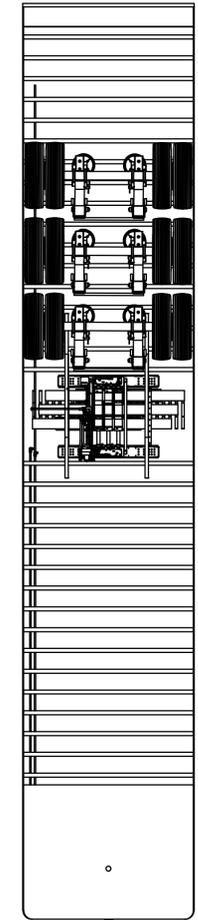


FIGURE 10a: OPTION 1 TOP VIEW **FIGURE 10b: OPTION 1 BOTTOM VIEW**

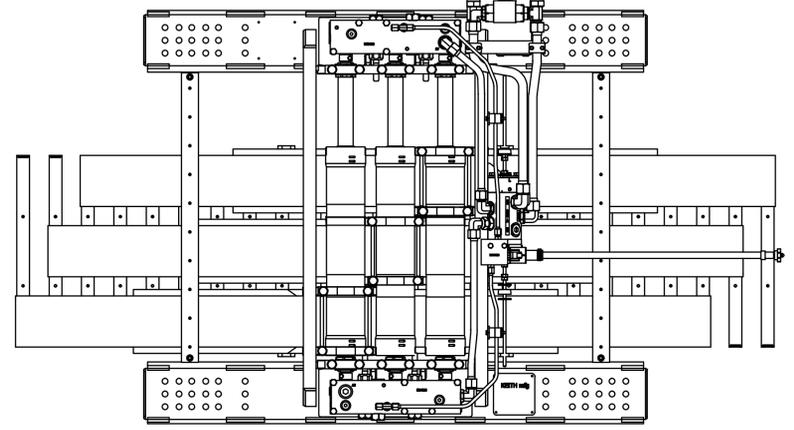
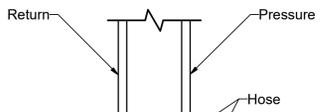
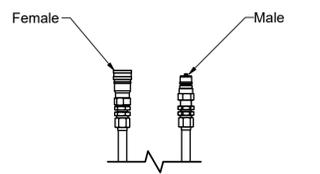


FIGURE 11: HYDRAULIC TUBE CONNECTION TO DRIVE UNIT

HYDRAULIC TUBE INSTALLATION

HYDRAULIC PRESSURE, GENERATED BY THE TRACTOR'S WET KIT, POWERS THE DRIVE UNIT. TUBING MUST CONNECT THE DRIVE UNIT TO THE TRACTOR. ENSURE THAT ALL BRAKE LINES AND ELECTRICAL WIRES ARE SAFELY ROUTED AWAY FROM ANY MOVING PARTS. IF NECESSARY, REROUTE THEM TO PROTECT THEM FROM DAMAGE.

CONSIDER THE LOCATION OF THE HYDRAULIC TUBING. IT IS PREFERABLE FOR QUICK-COUPERS IN FRONT OF THE TRAILER TO BE INSTALLED IN THE CENTER OF THE TRAILER. THIS KEEPS HOSE LENGTHS DOWN, IF THEY STAY CONNECTED WHILE DRIVING.

THERE ARE THREE OPTIONS AVAILABLE TO CONNECT THE WET KIT TO THE DRIVE UNIT:

- 1) ROUTING THE HYDRAULIC TUBING THROUGH THE CROSS-MEMBERS (FIGURE 8).
 - A) MAKE TWO 35mm HOLES PER CROSS-MEMBER. THE HOLES SHOULD BE CLOSE TO THE SIDES OF THE TRAILER TO MAINTAIN THE STRUCTURAL INTEGRITY OF THE CROSS-MEMBERS.
 - B) ACCESS HOLES MUST BE CUT OR DRILLED THROUGH THE NOSE OF THE TRAILER, IN LINE WITH WHERE THE TUBES WILL PASS THROUGH CROSS-MEMBERS.
 - C) PATCH THE HOLES AFTER THE TUBING IS IN PLACE. THE TUBES MAY DROP BELOW THE CROSS-MEMBERS ANYWHERE BEHIND THE LANDING GEAR AND ATTACH TO THE UNDER SIDE OF CROSS-MEMBERS.
- 2) RUN THE TUBE UNDERNEATH THE SIDE SEAL (FIGURE 9).
 - A) IF THERE IS ENOUGH SPACE UNDER THE SIDE SEAL, THEN ONE TUBE MAY OCCUPY EACH SIDE OF THE TRAILER.
 - B) TUBES MUST EITHER BE CLAMPED TO CROSS-MEMBERS OR PLACED IN 25mm I.D. PVC PIPE, TO PREVENT RUBBING.
 - C) THE SIDE SEAL MUST BE DETACHABLE FOR MAINTENANCE.
- 3) ROUTE THE TUBE UNDERNEATH THE CROSS-MEMBERS PAST THE FIFTH WHEEL AREA. ATTACH TUBE WITH HOSE CLAMPS TO THE CROSS-MEMBERS. CAUTION: THIS CAN CAUSE PROBLEMS WITH TRUCK TIRE CLEARANCE, AND IT LEAVES THE TUBE HIGHLY VULNERABLE. BE CAUTIOUS WHEN USING THIS METHOD.

GENERAL NOTES ABOUT HYDRAULIC TUBING INSTALLATION (SEE FIGURE 11)

- KEEP BENDS TO A MINIMUM TO REDUCE HEAT GENERATION. MAKE ALL BENDS WITH SWEEPING ELBOWS.
- 25mm HOSE CAN BE USED TO CONNECT TUBES TO DRIVE.
- KEEP ALL HYDRAULIC LINES AND COMPONENTS CLEAN DURING INSTALLATION. INTRODUCING DIRT INTO THE SYSTEM CAN GREATLY REDUCE THE LIFE OF THE SYSTEM.
- CONNECT MALE QUICK CONNECTOR TO THE PRESSURE LINE. CONNECT FEMALE QUICK CONNECTOR TO TANK LINE.

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HYDRAULIC TUBE INSTALLATION

KFD INSTALLATION INSTRUCTIONS	DWG NUMBER: D-90309 A
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SUBDECK SELECTION

THE SQUARE TUBING THAT THE FLOOR BEARINGS WILL ATTACH TO AND SUBSEQUENTLY THE FLOORING WILL RIDE ON IS REFERRED TO AS THE SUBDECK. THE PROPER INSTALLATION OF THE SUBDECK IS CRITICAL FOR MAINTAINING DRIVE ALIGNMENT, FLOOR STRAIGHTNESS AND FOR OPTIMAL PERFORMANCE OF THE SEAL LOCATED BETWEEN THE FLOOR SLATS. SUBDECK IS USUALLY APPLIED BEFORE THE DRIVE UNIT IS POSITIONED, UNLESS THE DRIVE UNIT IS DROPPED FROM ABOVE.

1. CHOOSE THE SUB-DECK MOST SUITABLE FOR YOUR APPLICATION. SEE FIGURE 12(a-b).

- STEEL 25mm X 25mm TUBE FOR USE WITH STEEL CROSS-MEMBERS.
- ALUMINUM 25mm X 25mm SUBDECK FOR USE WITH STEEL OR ALUMINUM CROSS-MEMBERS. MUST BOLT SUBDECK TO STEEL CROSS-MEMBERS

2. CHOOSE THE SUBDECK END CONDITION MOST SUITABLE TO YOUR APPLICATION (SEE FIGURE 13). SUBDECK ENDS WILL TYPICALLY BE 12mm FROM THE DOORS OF THE TRAILER. RECOMMENDATIONS AND INSTALLATION INSTRUCTIONS FOR DIFFERENT STYLES OF SUBDECK BELOW.

- FULL LENGTH STEEL 25mm X 25mm TUBE RECOMMENDED FOR NON-ABRASIVE MATERIALS. WELD CAPS ONTO END AND GRIND TO A SMOOTH FINISH.
- SOLID STEEL 25mm X 25mm BAR RECOMMENDED FOR HIGHLY ABRASIVE MATERIALS. 300mm LENGTH MINIMUM. ALIGN WITH INSTALLED SUBDECK AND WELD.
- SOLID ALUMINUM 25mm X 25mm BAR PROVIDES A STRONG STRUCTURE AT END OF SUBDECK WHEN USING ALUMINUM SUBDECK. 300mm LENGTH MINIMUM. ALIGN WITH INSTALLED SUBDECK AND WELD.
- UHMW T-BLOCK PREVENTS MATERIAL FROM GOING UNDERNEATH SLATS. PROVIDES A SLIDING SURFACE FOR THE SLATS. NOT RECOMMENDED FOR HIGHLY ABRASIVE MATERIALS. ALIGN WITH INSTALLED SUBDECK. DRILL AND COUNTERSINK BOLT HOLES THROUGH THE T-BLOCKS AND BAFFLE PLATE. COUNTERSINK TO 6mm BELOW THE TOP OF THE BLOCK. ENSURE BOLT HEADS ARE BELOW THE SURFACE OF THE BLOCK. IF ACCESS IS POOR, USE SELF TAPPING SCREWS.
- NO SUBDECK END CONDITION KEITH RECOMMENDS THIS OPTION ONLY WHEN USING END PLUGS. SUBDECK WILL OVERLAP THE BAFFLE PLATE BY 50mm MINIMUM. CONNECT SUBDECK TO BAFFLE PLATE.

SUBDECK INSTALLATION

1. CUT SUBDECK TO LENGTH ACCORDING TO TRAILER LENGTH, SUBDECK END CONDITION AND DRIVE LOCATION. SUBDECK MUST EXTEND PAST CROSS-MEMBERS BY 50mm FOR BEARINGS TO WORK (FIGURE 14).

2. POSITION AND MOUNT TUBES. BEGIN AT REAR OF TRAILER. PLACE THE TWO OUTSIDE TUBES AND LOCATE THEM PROPERLY WITH THE SPACING JIGS. CENTER THE JIGS SO THE TUBES ARE THE SAME DISTANCE FROM THE WALLS. LAY OUT THE REST OF THE REMAINING TUBES ACROSS THE WIDTH OF THE TRAILER, SPACING THEM WITH JIGS. KEEPING THE JIGS ABOVE THE CROSS-MEMBERS CLAMP THE JIG AND TUBES TO EVERY OTHER CROSS-MEMBER. BE SURE THAT ALL SUBDECK TUBES OVERHANG BY AT LEAST 50mm (FIGURE 14). MAKE SURE TO PLAN FOR THE DRIVE GAP WHILE INSTALLING THE SUBDECK. WELD OR HUCK-BOLT THE SUBDECK TO THE CROSS-MEMBERS BETWEEN THE JIGS. MOVE THE JIGS AND FINISH MAKING CONNECTIONS. CONNECT THE SUBDECK AT EACH INTERSECTION OF A TUBE AND A CROSS-MEMBER. WELDS SHOULD BE 3mm FILLET, 20mm TO 30mm LONG, AND CENTERED ON THE FLANGE. SEE FIGURE 15 FOR SUGGESTED WELD PATTERN.

3. IF NECESSARY, INSTALL SIDE SEAL SUPPORT AT THIS TIME. SIDE SEAL SHOULD RUN FULL LENGTH ALONG EACH WALL. ENSURE SIDE SEAL IS SUPPORTED THROUGH THE DRIVE GAP.

NOTES ON SUBDECK INSTALLATION

EXCESSIVE WELDING WILL CAUSE THE SUBDECK TO WARP. USING THE PATTERN IN FIGURE 15 AND STARTING EACH PASS ON THE SAME SIDE OF THE TRAILER SHOULD ALLOW FOR ENOUGH TIME FOR THE SUBDECK TO COOL.

SEPERATE ALUMINUM SURFACES FROM STEEL SURFACES WITH PAINT OR PACKING TAPE TO PREVENT METAL DECAY.

POSITION DRIVE UNIT PRIOR TO INSTALLING SUBDECK. DO NOT FINISH INSTALLING DRIVE UNIT UNTIL AFTER SUBDECK IS INSTALLED. SEE FOLLOWING PAGE FOR DRIVE UNIT POSITIONING.

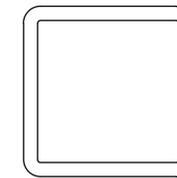


FIGURE 12a:
STEEL OR ALUMINUM
25mm X 25mm SUBDECK

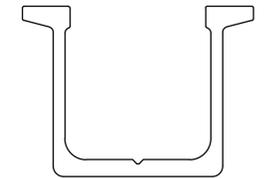


FIGURE 12b:
SUBDECK FOR SPLASHGUARD
HOLD-DOWN BEARING

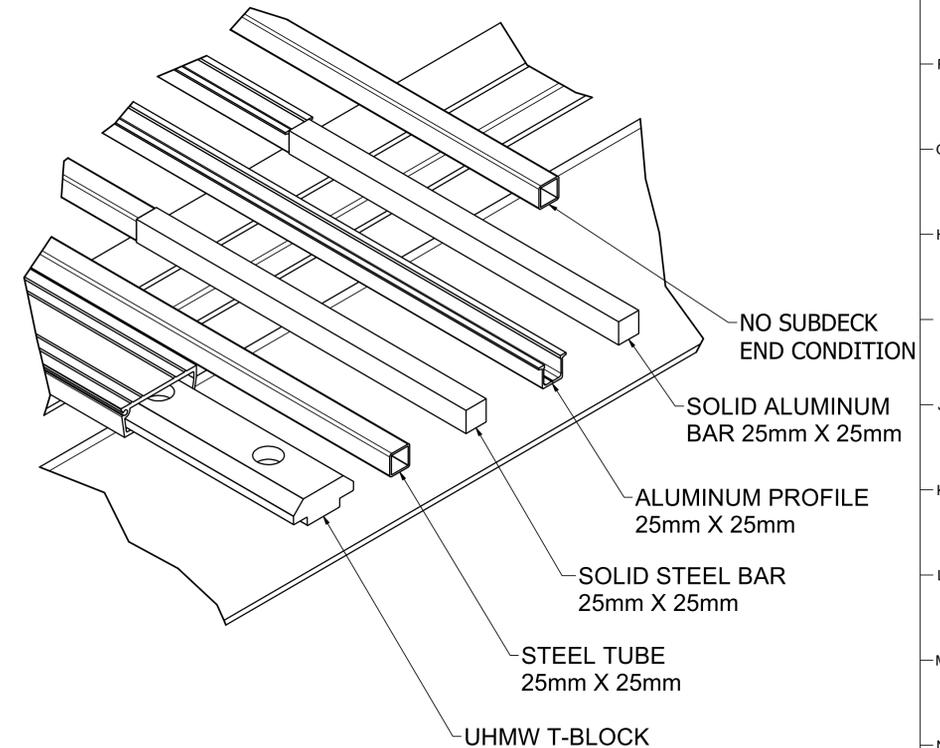


FIGURE 13: SUBDECK END CONDITIONS

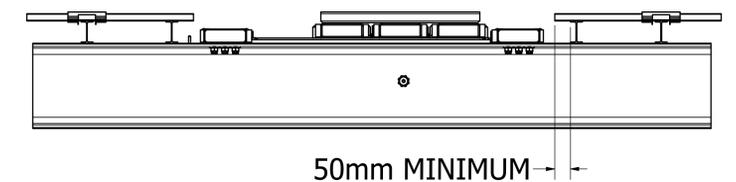


FIGURE 14: SUBDECK OVERHANG

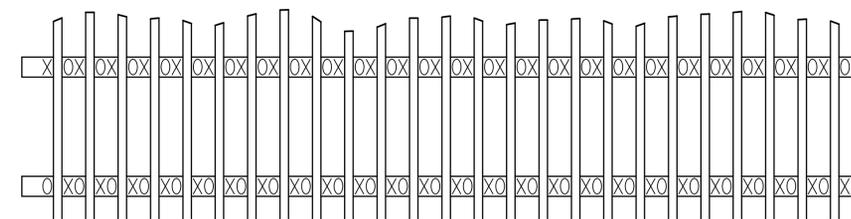


FIGURE 15: SUBDECK WELD PATTERN
WELD X'S ON FIRST PASS
WELD O'S ON SECOND PASS

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DATE: 12/21/2015 APPRVD BY:

SUBDECK SELECTION AND INSTALLATION

KFD INSTALLATION INSTRUCTIONS DWG NUMBER: D-90309 A

DRIVE UNIT PLACEMENT

1. DETERMINE THE LOCATION OF THE DRIVE UNIT.
THE DRIVE UNIT SHOULD BE INSTALLED AS CLOSE TO THE REAR OF THE TRAILER AS IS PRACTICAL.
2. POSITION DRIVE UNIT.
POSITION, BUT DO NOT ATTACH THE DRIVE BEFORE THE SUB-DECK IS INSTALLED. THE SYSTEM CAN BE LIFTED INTO AN OPEN TOP TRAILER FROM ABOVE WITH A CRANE. IF LIFTING IS NOT POSSIBLE, USE THE FOLLOWING METHOD:
 - A. SET A SHEET OF PLYWOOD INSIDE THE REAR OF THE TRAILER.
 - B. PLACE BLOCKING ON THE SHEET TO PROTECT HYDRAULIC TUBING.
 - C. LAY THE DRIVE UNIT ON THE SHEET.
 - D. SLIDE THE SHEET FORWARD INTO THE DRIVE GAP.
 - E. RAISE THE REAR OF THE UNIT SO THE FRONT STIFFENER PLATE WILL CLEAR THE REAR CROSS-MEMBER.
 - F. LOWER THE UNIT AND SLIDE TO POSITION.

NOTE: A MINIMUM DRIVE GAP OF 1450MM IS NECESSARY TO MANEUVER THE DRIVE UNIT.

IMPORTANT: DO NOT DAMAGE PISTON RODS. DO NOT LIFT DRIVE UNIT BY ANY OF THE HYDRAULIC COMPONENTS. LIFT THE DRIVE BY CONNECTING TO THE FRAME, IDEALLY THE FORMED CROSS-MEMBERS (FIGURE 16).

3. ALIGN AND LEVEL DRIVE UNIT.

FRONT TO REAR ALIGNMENT

CENTER THE DRIVE UNIT IN THE DRIVE GAP. THE 25mm X 25mm TUBING SHOULD EXTEND 50mm PAST THE CROSS-MEMBERS AT EACH END OF THE DRIVE UNIT. THE CROSS-DRIVE SHOULD BE PARALLEL TO TRAILER CROSS-MEMBERS.

SIDE TO SIDE ALIGNMENT

RECOMMENDED METHOD: AFTER THE SUB-DECK IS WELDED OR BOLTED DOWN, USE A STRAIGHT EDGE TO ALIGN THE DRIVE-SHOES WITH RESPECTIVE 25MM X 25MM TUBING. DO THIS WITH AT LEAST TWO SHOES ON EACH SIDE OF THE TRAILER (FIGURE 16).

OPTIONAL METHOD FOR PERFECTLY STRAIGHT TRAILER: ALIGN THE DRIVE UNIT'S CENTERLINE MARKS WITH THE TRAILER'S CENTERLINE.

HEIGHT

- A. RAISE THE TOP OF THE CROSS-DRIVE SHOES TO THE SAME HEIGHT AS THE TOPS OF THE BEARINGS.
- B. SHIM IF NECESSARY.
THIS METHOD GIVES THE PROPER DRIVE HEIGHT, AS BEARINGS ARE 6mm ABOVE THE 25mm X 25mm TUBE AND THE DRIVE SHOES CONNECT DIRECTLY TO FLOOR SLATS.

DRIVE UNIT INSTALLATION

1. BOLT THE DRIVE UNIT IN PLACE WITH 16mm BOLTS, OR WELD THE DRIVE IN PLACE. PLUG WELD HOLES (6 HOLES, 4X PLACES).
DO THIS STEP ONLY IF THE SUBDECK HAS BEEN INSTALLED AND THE DRIVE HAS BEEN ALIGNED.
2. INSTALL CROSS-DRIVE SUPPORT TUBES AS SHOWN.
SLIDE THE SUPPORT TUBES INTO POSITION BETWEEN CROSS-DRIVES AND TRAILER FRAME RAILS. PLACE THE TUBES WHERE THEY WILL SUPPORT THE CROSS-DRIVE OVER A FULL STROKE. THE STEEL TUBES MUST BE SHIMMED TO CREATE A CLOSE DRIVE TO UHMW FIT, WITH A GAP BETWEEN CROSS-DRIVE AND SUPPORT NO MORE THAN 1mm FROM THE LOWEST CROSS-DRIVE. DO NOT SHIM TOO MUCH AS AN EXTREMELY TIGHT FIT COULD TEAR THE UHMW FROM THE STEEL. BOLT THE TUBES IN PLACE WITH ONE 10mm X 25mm BOLT AT EACH END.
3. KEITH RECOMMENDS INSTALLING SUPPORT BEAMS THAT RUN FROM THE TRAILER WALL TO THE SUPPORT RAILS OR DRIVE FRAME IN THE DRIVE GAP AREA. THIS IS TO MAINTAIN THE STRUCTURAL INTEGRITY OF THE TRAILER WALLS (FIGURE 18). USE I-BEAM, TUBE, OR ANGLE.
4. DRIVE UNITS COME PRIMED WITH A GREY OXIDE PRIMER COATING. ENSURE THAT THE DRIVE UNIT IS FULLY COVERED WITH WITH PRIMER. TREAT AND PREPARE THE DRIVE UNIT AND SUBDECK BEFORE COVERING WITH A FINISHING PAINT.

IMPORTANT: DO NOT PAINT THE CYLINDER CHROME RODS, THE SWITCHING VALVE CHROME ROD, THE SERIAL PLATE, AND ANY DECALS ON THE DRIVE. MAKE SURE THAT ALL OF THESE COMPONENTS ARE COMPLETELY PROTECTED BEFORE PAINTING.

FIGURE 16: DRIVE UNIT

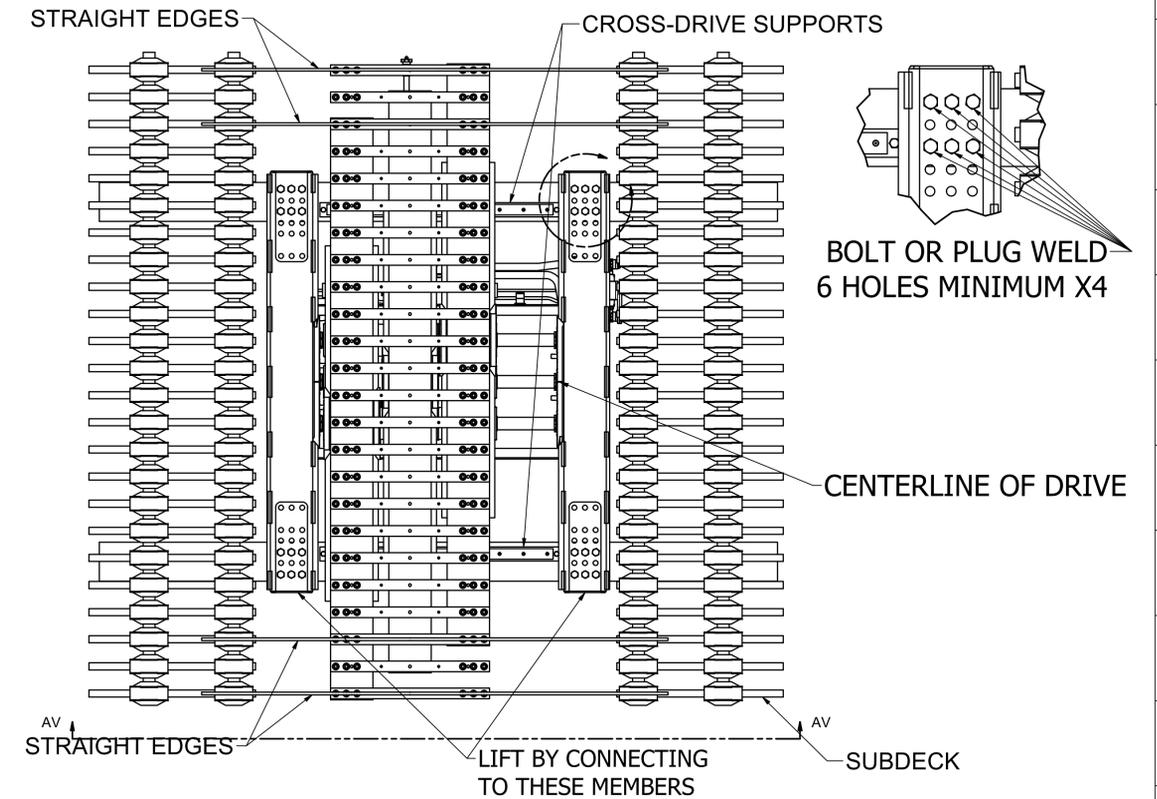
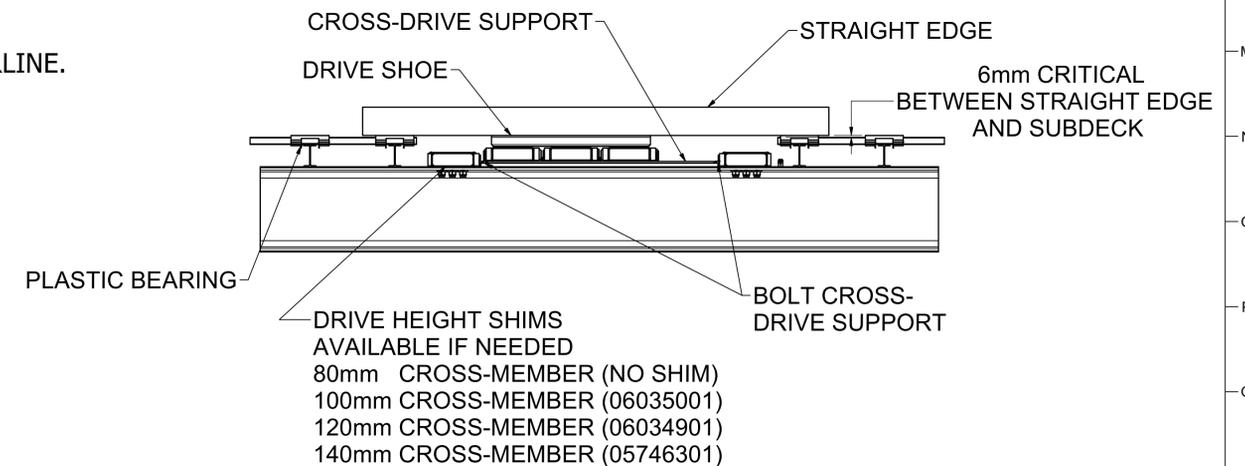


FIGURE 17: SIDE VIEW OF DRIVE UNIT



INSTALL SUPPORT TO MAINTAIN TRAILER WALL STRENGTH

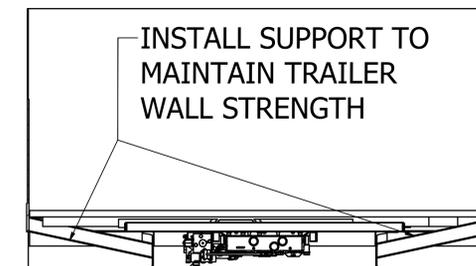


FIGURE 18: TRAILER WALL SUPPORTS

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SCALE: VARIES SHEET 5 OF 8 DRAWN BY: EW

DATE: 12/21/2015 APPRVD BY:

DRIVE UNIT INSTALLATION

KFD INSTALLATION INSTRUCTIONS DWG NUMBER: D-90309 A

FLOORING INSTALLATION

1. DETERMINE LENGTH OF FLOOR SLATS.
THE SLATS HAVE TO REACH FROM 12mm FROM THE DOORS TO A MINIMUM OF 250mm FROM THE CLOSEST POINT ON THE FRONT WALL AT FLOOR LEVEL. THIS IMPLIES THAT THE MAXIMUM LENGTH OF THE SLATS IS 292MM SHORTER THAN THE INNER LENGTH OF THE TRAILER. FOR EXAMPLE, MAXIMUM SLAT LENGTH FOR A 8" STROKE UNIT IN A 13.47m TRAILER IS 13.178m. MAKE SURE TO ACCOUNT FOR FLOOR END PLUGS WHEN MEASURING.

WARNING: MAKE SURE THAT THE SLATS DO NOT BUMP THE FRONT WALL. WATCH FOR ROUND SHAPED WALLS, BE PARTICULARLY CAREFUL WITH THE FRONT CORNERS.

2. CUT FLOOR SLATS TO LENGTH. IF A WEAR PLATE OR END PLUG IS MOUNTED ON ONE END OF THE FLOOR SLAT, CUT THE SURPLUS OFF AT THE OPPOSITE SIDE.
3. INSTALL BEARINGS
THERE ARE A VARIETY OF DIFFERENT BEARINGS, EACH WITH DIFFERENT INSTALLATION METHODS. THE 3003 BEARING, SNAPS OVER THE SUBDECK AND CROSS-MEMBERS. SEE FIGURES 19(a-b) THE SPLASHGUARD HOLD-DOWN BEARING SIMILARLY GOES OVER THE SUBDECK, BUT RUNS CONTINUOUSLY, TYPICALLY IN 1.85m SECTIONS. A 300309 BEARING IS USED AT THE ENDS NEXT TO THE FRONT OF THE TRAILER, DRIVE GAP ON BOTH SIDES, AND THE REAR OF THE TRAILER.
4. IF NECESSARY, INSTALL ALUMINUM END PLUGS, FILLER AND WEAR STRIPS, AND SEAL IN THE FLOOR SLATS.
SEE FOLLOWING PAGE FOR INSTRUCTIONS.

NOTE: IF MULTIPLE TRAILERS ARE BEING OUTFITTED WITH THE SYSTEM, IT IS HELPFUL TO PLACE ALL OF THE DRIVE UNITS THE SAME DISTANCE FROM THE REAR OF THE TRAILER, SO ALL OF THE FLOORING CAN BE DRILLED AT THE SAME LOCATION.

5. PRE-DRILL FLOORING IN PREPARATION FOR INSTALLATION INTO THE TRAILER. SEE FIGURES 20(a-b). MEASURE THE DISTANCE FROM 50mm INSIDE THE DOOR TO THE FIRST SET OF HOLES IN THE DRIVE SHOES. MAKE SURE THE DRIVE IS FULLY STROKED TOWARDS THE REAR OF THE TRAILER. USE THIS DISTANCE TO SET THE SHOE DRILL JIG (06121701) AT THE FIRST HOLE.
6. INSTALL FLOORING INTO THE TRAILER. IF THERE IS A DOUBLE SEAL SLAT, INSTALL IT FIRST. DEPENDING ON THE TYPE OF SLAT EITHER SLIDE THE SLATS INTO THE TRAILER OR SET THEM ON TOP OF THE BEARINGS AND SNAP THE FLOORING ONTO THE BEARINGS BY APPLYING FORCE DOWNWARD ON THE SLATS. THEN BOLT THE FLOORING TO THE DRIVE SHOES. MAKE SURE ALL BOLTS ARE FLUSH OR SLIGHTLY BELOW THE SURFACE OF THE SLATS.
7. INSTALL SIDE SEAL. IF NECESSARY, BOLT OR WELD SIDE SEAL DOWN ONTO THE SIDE SEAL SUPPORT. BOLT HEADS MUST BE FLUSH OR SLIGHTLY BELOW THE TOP SURFACE OF THE SIDE SEAL. RUN A SILICONE BEAD BETWEEN THE WALL AND THE SIDE SEAL. IF A WIDE GAP EXISTS BETWEEN THE SIDE SEAL AND THE INSIDE OF THE TRAILER WALL, BRIDGE THE GAP WITH FLAT BAR OR ANGLE.

FIGURE 19a: 3003 BEARINGS

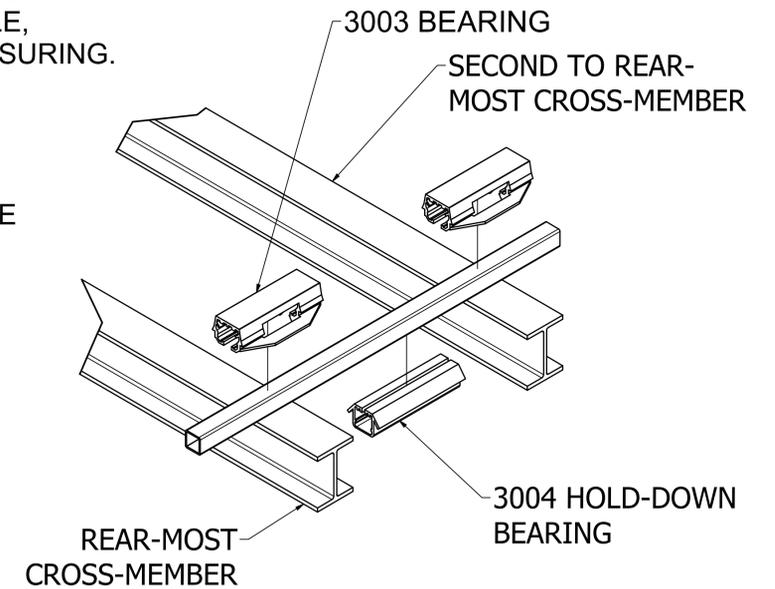


FIGURE 19b: SPLASHGUARD HOLD-DOWN BEARINGS

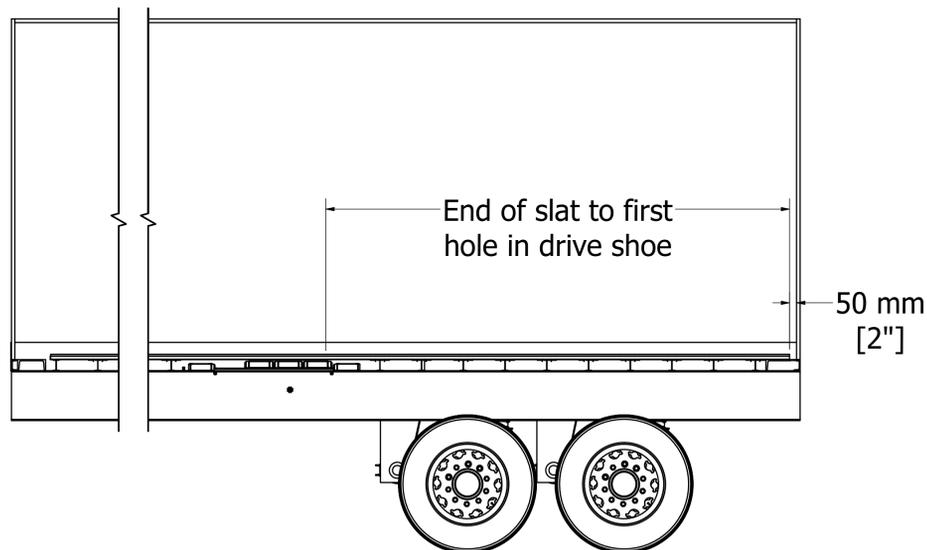
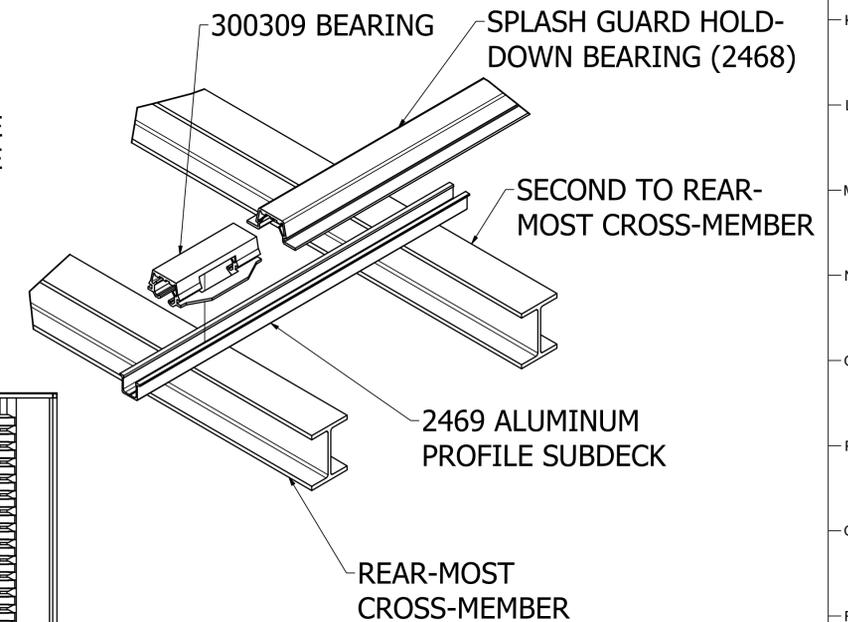


FIGURE 20a: TRAILER SIDE VIEW FOR FLOORING INSTALLATION

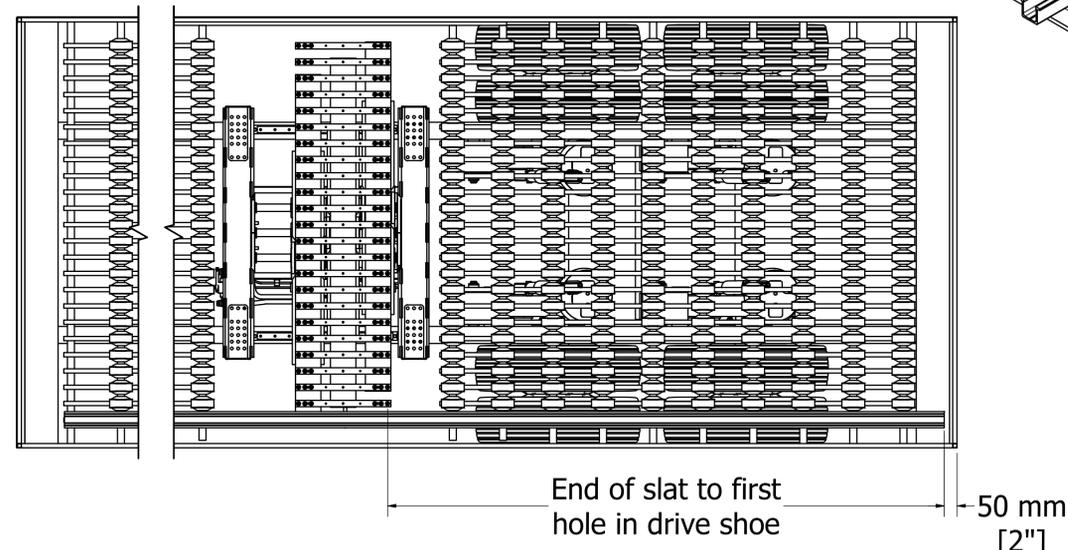


FIGURE 20b: TRAILER TOP VIEW FOR FLOORING INSTALLATION

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SCALE: VARIES SHEET 6 OF 8 DRAWN BY: EW

DATE: 12/21/2015 APPRVD BY:

FLOORING INSTALLATION

KFD INSTALLATION INSTRUCTIONS DWG NUMBER: D-90309 A

SLAT SEAL AND END PLUG INSTALLATION

1. DEBURR THE SEAL GROOVE, AND CHAMFER THE EDGE OF THE SLAT OPPOSITE THE SEAL GROOVE. SEE FIGURES 21(a-b).
2. TRIM THE END OF THE FLOOR SEAL TO A 45° ANGLE AT BOTH ENDS. THIS ANGLE WILL PUSH THE ADHESIVE INTO THE SEAL GROOVE AND MAKE ROOM FOR ANCHOR SCREW HEAD. SEE FIGURES 22(a-b).
3. PULL THE SEAL INTO THE FLOOR SLAT. MAKE SURE TO INSTALL THE SEAL IN THE CORRECT DIRECTION. SEE FIGURE 23 FOR HOW THE INSTALLED SEAL SHOULD LOOK. 1218 SEAL SHOWN.
4. PULL THE SEAL TO THE PROPER DISTANCE (X, FIGURE 24) FROM ONE END OF THE SLAT AND CUT THE OTHER END FLUSH WITH THE SLAT. DIMENSION "X" (FIGURE 24) WILL VARY WITH THE LENGTH OF THE SLAT AND THE TYPE OF SEAL BEING USED.
 - 4a. IF USING THE POLYURETHANE (BLACK OR GREY) SEAL, A RULE OF THUMB IS X IS EQUAL TO THE LENGTH OF THE SLAT DIVIDED BY 30.
 - 4b. IF USING THE POLYETHYLENE (BLUE) SEAL, THEN PULL THE END OF THE SEAL FLUSH WITH THE END OF THE SLAT, SO X = 0mm.
5. APPLY A 3mm" DIAMETER BEAD OF SIKAFLEX 221 OR SIMILAR ADHESIVE SEALER INTO THE EXPOSED SEAL GROOVE. HOLD THE CAULKING GUN AT A 60° ANGLE TO THE FLOOR SLAT. PUSH THE BEAD INTO THE GROOVE, DO NOT PULL (FIGURE 25).
 - a) IF USING THE POLYURETHANE SEAL, THE BEAD SHOULD BE FROM THE END OF THE SEAL TO THE END OF THE SLAT (X).
 - b) IF USING THE POLYETHYLENE SEAL, THE BEAD SHOULD BE 50mm LONG, STOPPING AT THE END OF THE SLAT.
6. PULL THE END OF THE SEAL FLUSH WITH THE SLAT AND INSTALL THE ANCHOR SCREW. DO NOT OVERTIGHTEN THE SCREW.
7. REPEAT STEPS 5-6 FOR THE OPPOSITE ENDS OF THE SLAT.
8. OPTIONALLY, APPLY THREE ADDITIONAL BEADS OF ADHESIVE 610mm LONG AT 1/4, 1/2, AND 3/4 THE LENGTH OF THE SLAT. ALLOW ADHESIVE TO DRY BEFORE INSTALLING SLAT INTO A WALKING FLOOR SYSTEM. THIS IS RECOMMENDED IF USING 1212 SEAL.
9. INSTALL ALUMINUM END PLUGS INTO THE DISCHARGE END OF EACH SLAT. SLIDE THE PLUG INTO THE END OF THE SLAT AND WELD AS SHOWN IN FIGURES 26(a-b). ALLOW SLAT TO COOL COMPLETELY BEFORE INSTALLATION.
10. INSTALL FLOOR SLATS INTO THE WALKING FLOOR SYSTEM (SEE PREVIOUS PAGE).

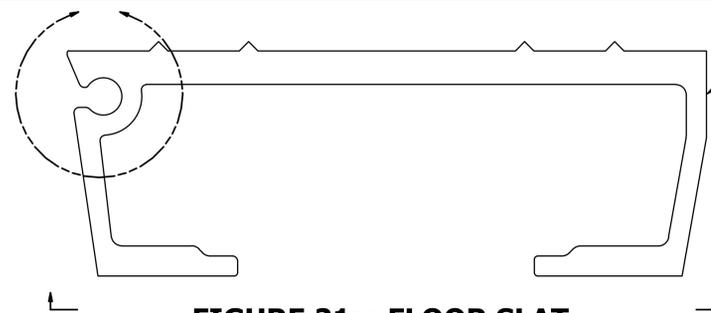


FIGURE 21a: FLOOR SLAT

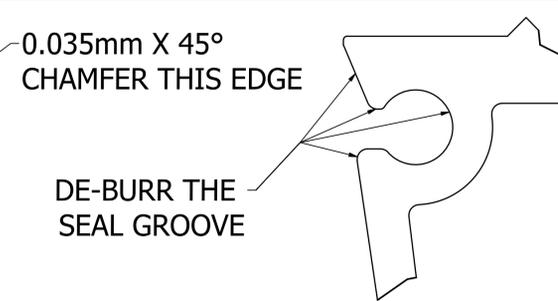


FIGURE 21b: SEAL GROOVE

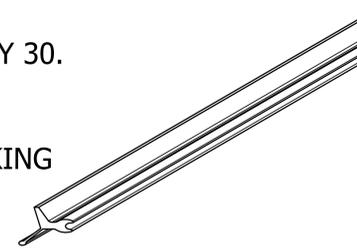


FIGURE 22a: 1218 SEAL

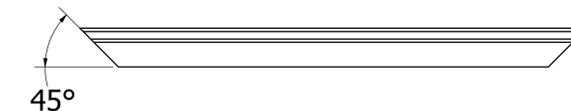


FIGURE 22b: 1218 SEAL



FIGURE 23: INSTALLED SEAL

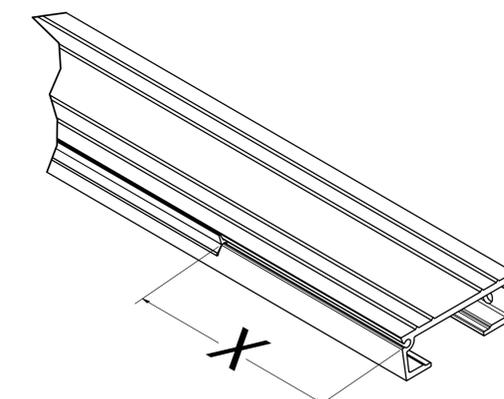


FIGURE 24: SEAL PULL DISTANCE

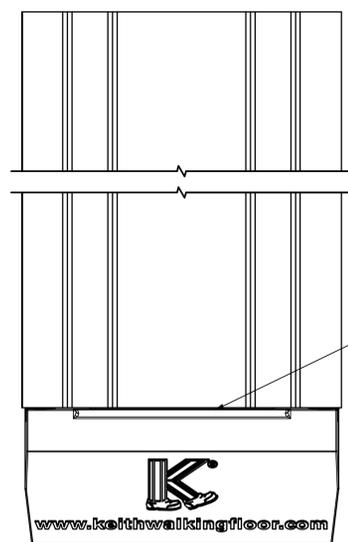


FIGURE 26a: ALUMINUM END PLUG INSTALLATION TOP VIEW

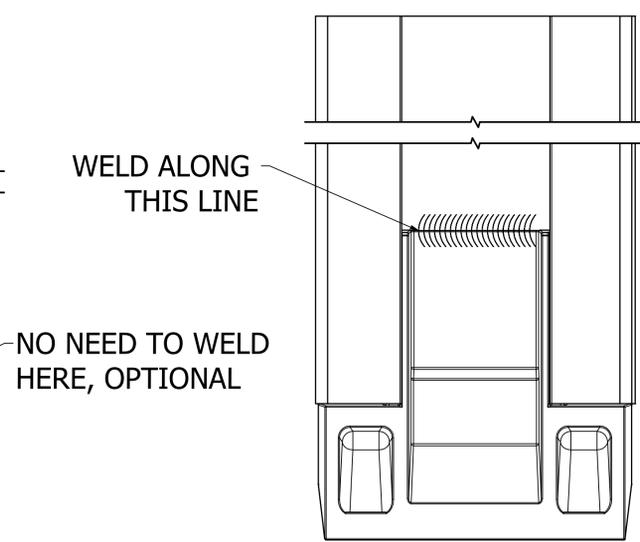


FIGURE 26b: ALUMINUM END PLUG INSTALLATION BOTTOM VIEW

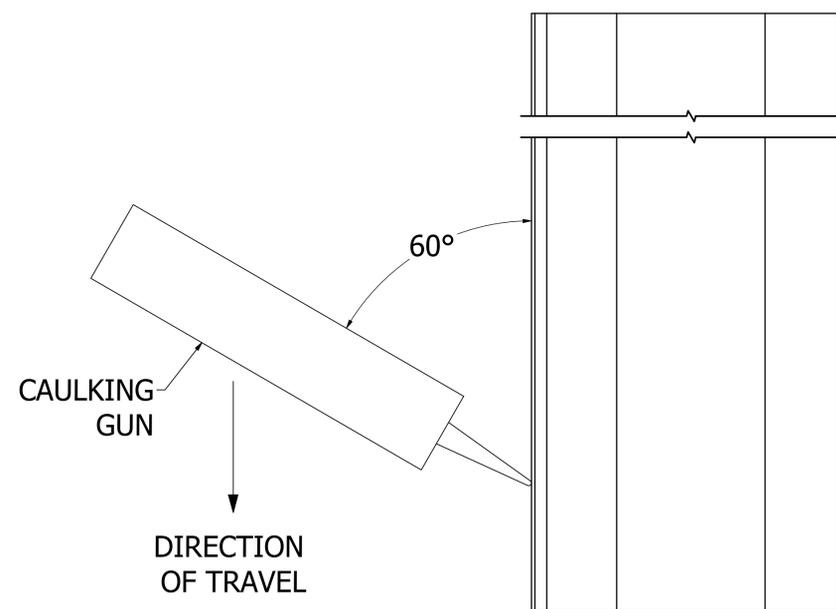


FIGURE 25: ADHESIVE SEALER

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SCALE: VARIES SHEET 7 OF 8 DRAWN BY: EW
 DATE: 12/21/2015 APPRVD BY:

FLOORING INSTALLATION

KFD INSTALLATION INSTRUCTIONS DWG NUMBER: D-90309 A

TO INSTALL A FRONT SHIELD, FOLLOW THE DIRECTIONS BELOW. IF KEITH PROVIDES THE FRONT SHIELD, IGNORE STEP 2.

1. DETERMINE DIMENSIONS (FIGURES 27(a-b)). THE WIDTH IS EQUAL TO THE INNER TRAILER WIDTH. THE FRONT SHIELD IS COMMONLY INSTALLED IN ONE OF TWO WAYS. ONE WAY IS WITH THE SHIELD ANGLED ABOUT 45°, THE OTHER THE SHIELD IS HORIZONTAL. WHEN THE FLOOR SLATS ARE IN THE REAR POSITION, THE SLIDE STRIP MUST LIE FULLY ON TOP OF THE FLOOR SLATS.

2. FABRICATE FRONT SHIELD. FORM THE PLATE AND IF NEEDED ATTACH ANGLED STEEL FOR SUPPORT. RIVET THE PLASTIC SLIDE STRIP TO THE SHIELD.

3. MOUNT FRONT SHIELD. SCREW THE PLATE TO THE SIDE OF THE TRAILER. PROVIDE CLEAN-OUT HOLES BELOW THE FRONT SHIELD.

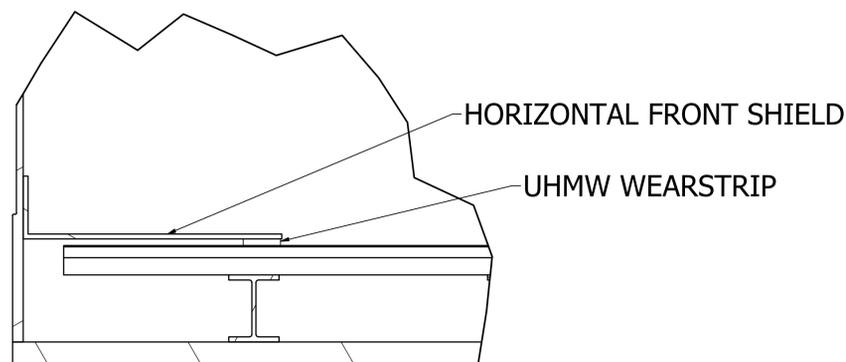


FIGURE 27a: HORIZONTAL FRONT SHIELD INSTALLATION

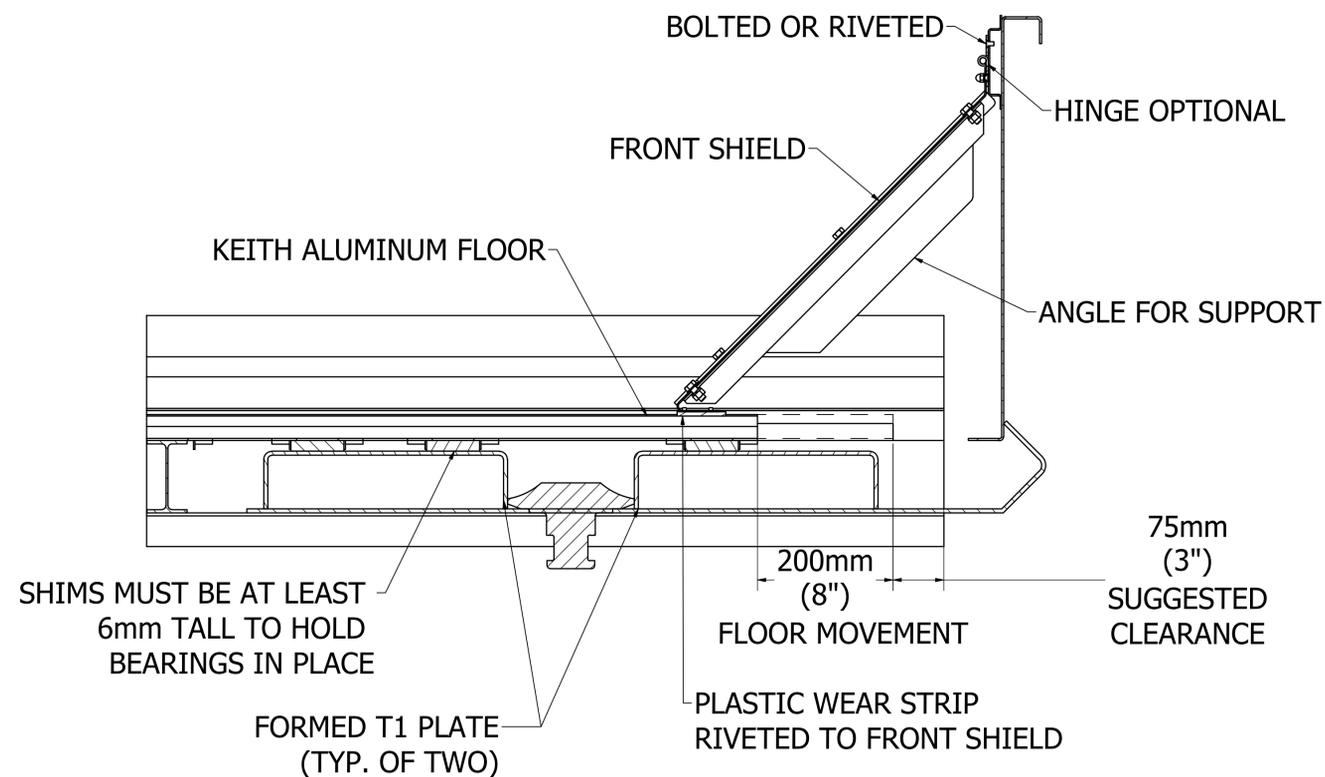


FIGURE 27b: SLOPED FRONT SHIELD INSTALLATION

INSTALLATION TOOLS

TOOLS PROVIDED BY KEITH MFG. CO.

- SPACER JIGS (FOR ALIGNMENT OF THE SUB-DECK)

BASIC TOOLS NOT SUPPLIED WITH KIT

- END WRENCH SET UP TO 38MM
- 6MM RATCHET SET WITH 300MM EXTENSION
- ALLEN WRENCHES
- HACK SAW
- HAND GRINDER
- 10M TAPE MEASURE
- 20 C-CLAMPS 11 R
- 6MM AND/OR 12MM HAND DRILL, BIT SET, 35MM HOLE SAW
- STRAIGHT EDGES
- DEAD BLOW HAMMER

MISCELLANEOUS

- HYDRAULIC SEALANT
- PAINT
- SIKAFLEX 221 ADHESIVE

SPECIAL TOOLS

- FLOW METER
- FLARING TOOL FOR 25MM PIPE
- 12MM DRILL BIT, 300MM LONG
- COUNTERSINK BIT, 82° WITH 12MM SHANK, 20MM SINGLE FLUTE
- TORQUE WRENCH UP TO 70N-M
- TORQUE WRENCH UP TO 250N-M
- MIG WELDER (WIRE WELDER)
- RIVET GUN
- OVERHEAD CRANE (HOIST OR FORKLIFT)
- CIRCULAR SAW
- CUTTING TORCH
- FLOOR SLAT STOMPER

OPTIONAL TOOLS

- KNEE PADS
- BAND SAW

GUARDS AND WARNINGS

AFFIX CAUTION DECALS TO THE SIDE OF THE TRAILER AT THE LOCATION OF THE DRIVE UNIT. SEE OWNER'S MANUAL FOR RECOMMENDED SPECIFIC LOCATIONS.

KEITH RECOMMENDS ATTACHING GUARDS THAT PREVENT ACCESS TO PINCH AND SHEAR POINTS. EXAMPLES WOULD BE THE ENDS OF SLATS AND THE DRIVE AREA. NEVER ATTEMPT TO ACCESS THESE AREAS WHILE DRIVE IS IN OPERATION.

BOLT TORQUE CHART

BOLT	LOCATION	CLASS	TORQUE N-m (FT-LBS)
M6 X 1	TUBE CLAMP AT BALL VALVE	5.8	10 N-m (7 ft-lbs)
M10 X 1.5	MANIFOLD	10.9	61 N-m (45 ft-lbs)
M12 X 1.5	FLOORING	10.9	128 N-m (95 ft-lbs)
M16 X 2	BARREL CLAMP	10.9	183 N-m (135 ft-lbs)
M16 X 2	ROD CLAMP	10.9	244 N-m (180 ft-lbs)

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SCALE: VARIES	SHEET 8 OF 8	DRAWN BY: EW
DATE: 12/21/2015		APPRVD BY:

FRONT SHIELD PREPARATION AND INSTALLATION
KFD INSTALLATION INSTRUCTIONS DWG NUMBER: D-90309 A