


SECTION A-A

NOTE: INSURE ROUTE OF CABLE IS FREE FROM OBSTRUCTIONS, AND NOTHING ON BACKSTOP UNIT WILL GET CAUGHT IN CABLE DURING FOLDING OPERATION.

ITEM	QTY	PART #	REV	DESCRIPTION
1	1	TW-2000	-	ELECTRIC WINCH
2	2	WP-750	A	WOOD FOR ELECTRIC WINCH
3	4	HB5045	-	1/2-13 x 2 1/2 in CARRAIGE BOLT
4	4	HN5038	-	1/2-13 FLANGE NUT

 976 Hartford Turnpike Waterford, CT 06385 USA (800)243-0533 Fax: (800)988-3363 www.jaypro.com	MODEL NUMBER: TW-2000KT1	CHECKED BY: WVB	
	PRODUCT NAME: WALL MOUNTED ELECTRIC WINCH ASSEMBLY		
DATE: 10/6/2011	REV: -	DRAWN BY: DRL	SHEET: 1 OF 1

Drilling of Wood Planks

- a. The wood planks for attaching to the wall are predrilled for their specific brackets. Lay these out on a sawhorse or similar work area. You will need to drill them for anchor bolt locations.
- b. It is best to use ½” anchors for the wall, therefore a ¾” hole in the wood plank is desirable to allow for leveling the plank. Set up a drill with a ¾” wood drill bit.
- c. When marking the planks, mark and drill from the front of the plank, the side facing away from the wall. This will be exposed as a finished product, so mark lightly. You need to drill from this side in order to prevent splintering when drilling
- d. Pulley and chain attachments are mounted either to 24” long planks, or 96” planks (check install drawings). These are critical attachments, 4 anchors per plank are best for the 24” ones. 8 anchors per plank are best for 96”.
- e. Stagger the anchors from side to side leaving 2” of wood outside each anchor and ultimately using 4 or 8 anchors accordingly for the plank.
- f. For fold-up unit the planks for the electric winch attachments will be drilled in a similar fashion. Typically there are 2 planks for each winch, so 2 holes per plank are sufficient, for a total of 4 anchors to support the hoist.
- g. It is very important that these holes are drilled as straight as possible through the planks, otherwise it becomes difficult to level them.

Wall Anchors

- a. Now you are ready to transfer this layout to the wall for drilling. Determine the centerline of the unit from the drawings and architectural drawings. Determine the width of the frame from your installation drawings. The bottom frame attachment is indicated on your drawings, this will dictate the location of your bottom hole. Relate this point to your anchor pattern. Mark a centerline of the plank starting at your bottom anchor location and extending to the top anchor location. Mark the actual hole locations to each side of the center as they are located on the plank. Try to avoid mortar joints they often contain wire mesh and are weaker than the surrounding block. The planks may be shifted up or down slightly to avoid the mortar joints. Continue marking pulley and/or chain locations. These points may also be shifted slightly to obtain desired anchor locations. Avoid attachment in the top 2 to 3 rows of block, this will cause the blocks to break away.

Important! *Remove any sheetrock or other non-structural materials from area immediately behind all wood planks. This material will interfere with the wall anchors. Failure to remove drywall or other such material may result in the entire backstop unit falling off the wall.*

- b. After marking all the anchor locations, double check before drilling. Make certain they are at the right height, width, and distance apart. If you are over a finished floor, make certain to protect the area prior to drilling. A box taped to the wall under each hole as you drill will catch a large portion of the dust. Drill all holes before attaching the planks. See Appendix A – Anchor Management for specific details on anchor installation.
- c. Clean the area thoroughly before proceeding to prevent spreading masonry dust.
- d. Determine the proper anchor for each location. This is IMPORTANT. Do not try to use an anchor that is not suited to the location. For instance, don't use an expansion anchor in a hollow wall application. Suitable toggle bolt anchors are available. If you use a double expansion anchor, make sure you use a back-up washer between the wall and plank to prevent the anchor from pulling into the wood. Use a suitable washer at the face of the plank to cover the hole. 1-1/2” outside diameter works well.

Appendix A – Anchor Management

- ◆ It can be argued that the wall anchor is the most critical component of the wall mounted backstop system. All of the weight of the unit, as well as the load introduced through play and use of the equipment, ultimately must be supported by the wall anchors. Preparation of the wall, drilling of the holes in the proper location and depth, and most importantly correct selection of the type of anchor are all critical steps in the installation process.
- ◆ Due to the fact that there are so many different types of walls Jaypro is not able to supply the wall anchors with the backstop unit at the time of shipment. We do, however, stock most common types and you can purchase the anchors from us directly.
- ◆ All wall anchor hardware should be a minimum of 1/2" diameter.
- ◆ Below are diagrams showing preferred anchor pattern for various sizes of wood planks. These are intended only as a general guide. Field conditions and obstructions, mortar joints and CMU web/cavity locations, sound proof blocking, all these present situations which must be handled in the best way possible to insure a proper wall mounted installation.
- ◆ It is highly recommended that the top planks be secured with thru-bolts. The majority of the load of the backstops is transferred directly to these points. In the case of low ceilings or roof structure, the top chain attachment points may be made directly to building steel. This is not an option for side folding units, only stationary and fold-up models. Note that with the fold-up style you may be limited in the amount the unit can fold if roof structure is used.
- ◆ Use a minimum of 4 anchors for each manual or electric winch attachment point. Consult drawings in the appendix of this manual if applicable for specific details on the two standard winch assemblies.



 *Attachment Fittings* • *Anchor Locations*


Figure 7: Wood Plank Anchor Locations

- ◆ The following two pages lists three of the most common wall anchors. Before drilling a single hole you must verify the type of wall you will be installing against and then procure the necessary type and quantity of anchor to guarantee a successful installation. Immediately below is a table listing acceptable anchor types for given wall compositions.

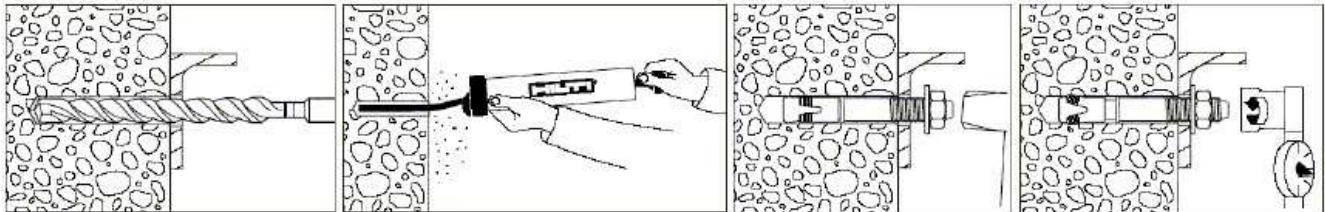
Wall Type	Recommended Anchor
4" Pre-Cast	Rawl Powerstud Hilti Kwik Bolt 3
CMU (Hollow)	Tumble Toggle
CMU (Filled / Solid)	Double Expansion Shield Hilti Kwik Bolt 3

Figure 8: Recommended Anchors for Wall Types

Pre-Cast or Filled/Solid CMU

The Hilti Kwik bolt 3 comes in two varieties – Expansion anchor and Adhesive anchor (sometimes referred to as a chemical anchor). The Hilti Kwik Bolt 3 is the only anchor approved in many California districts due to its endurance under seismic loading. It has extremely high load capacities, but it has particularly stringent preparation steps. Consult Hilti’s own website (www.us.hilti.com) and installation instructions supplied with anchors for complete site and equipment preparations. Shown below are general steps for installation for reference only.

Hilti Kwik Bolt 3 [Expansion Anchor]



1. Hammer drill a hole to the same nominal diameter as the Kwik Bolt 3. The hole depth must exceed the anchor embedment by at least one diameter. The fixture or predrilled wood plank may be used as a template to ensure proper anchor location.
2. Clean hole.
3. Drive the Kwik Bolt 3 into the hole using a hammer. The anchor must be driven until at least six threads are below the surface of the fixture (or wood).
4. Tighten the nut to the recommended installation torque.

Wall Type	Recommended Torque
Normal and lightweight concrete	40 ft-lb
Grout filled block	25 ft-lb

Figure 9: Recommended Torque for Kwik Bolt 3 (Expansion Anchor)

Anchor Installation is Allowed in all Non-Shaded Areas

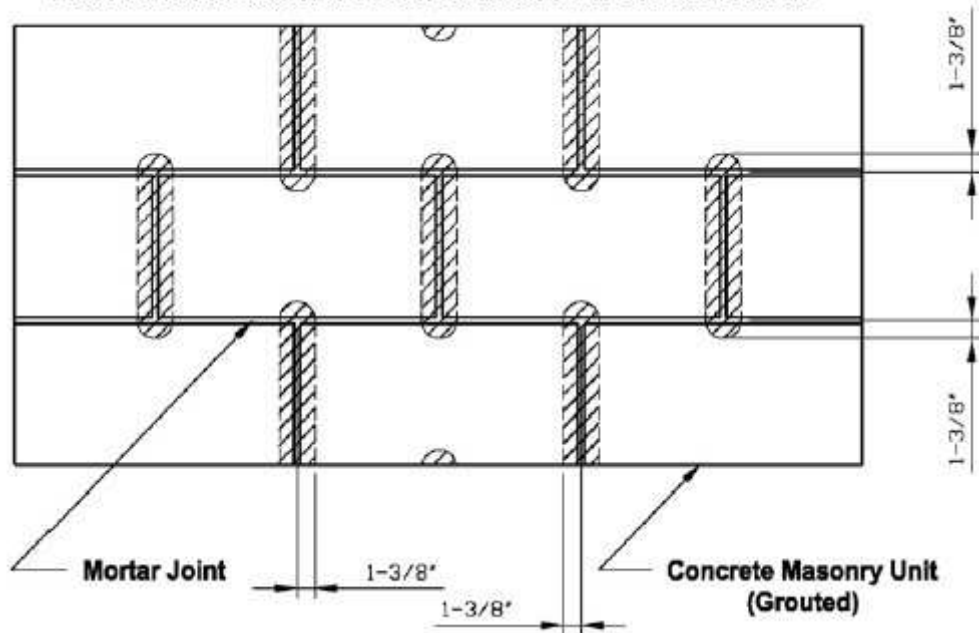
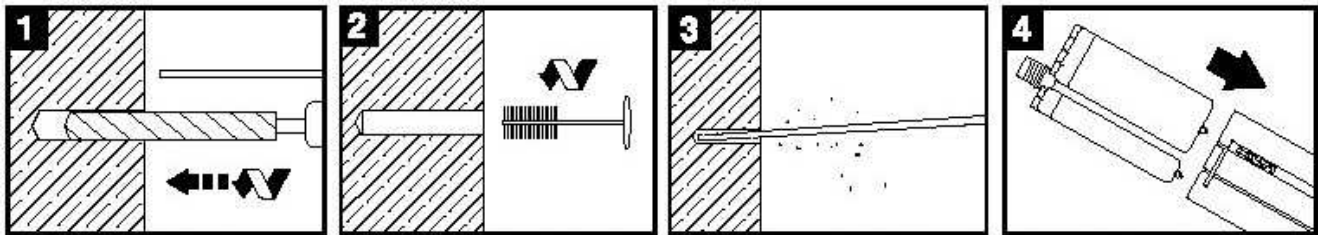
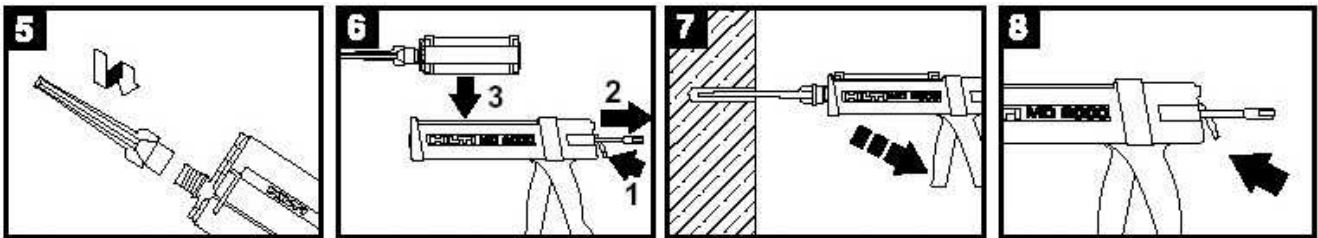


Figure 10: Allowed Anchor Locations for Concrete Masonry Unit (CMU)

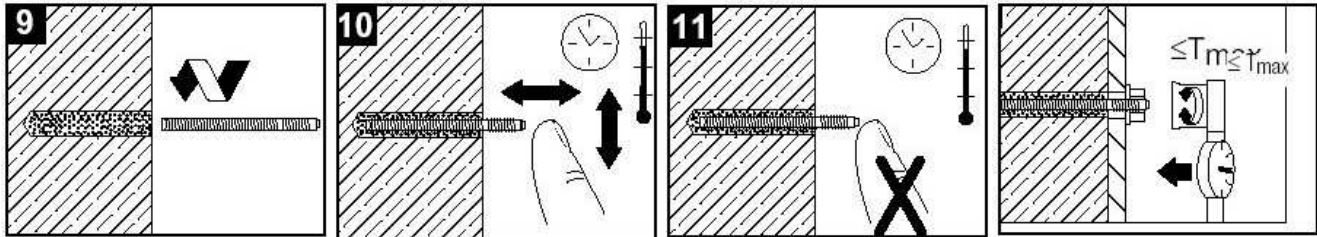
Hilti Kwik Bolt 3 [HIT HY 150 Adhesive Anchor System]



1. Drill anchor hole with carbide bit. Contact Hilti for use of Diamond Core bits.
2. Clean hole with wire brush. Proper hole cleaning is essential.
3. Insert air nozzle to bottom of hole and blow out hole using a pump or compressed air.
4. Put refill pack into holder. Remove cap covering threaded projection.



5. Screw on static mixer.
6. Put holder/cartridge into appropriate dispenser and **discard first two trigger pulls of adhesive from each refill pack or cartridge.**
7. Inject adhesive into hole starting at the bottom until 1/3 to 2/3 full. Use mixer filler tube extensions when needed to reach the hole bottom.
8. Unlock dispenser.



9. Insert rod. Twist during installation.
10. Fastener may be adjusted during specified gel time.
11. Do not disturb anchor between specified gel time and cure time.
12. Apply specified torque as required to secure items to be fastened. Do not exceed maximum torque specified.

See applicable Hilti Kwik Bolt tables below for gel and cure time information. Remember to consult Hilti directly for complete specifications and installation instructions. The information included herein is intended as a guide only for assistance in proper anchor selection. HAS rod information shown but other acceptable anchors are available from Hilti.

Open Gel Time Table (Approximate)¹

Base Material Temperature		HIT HY 150 ²	HIT-ICE
°F	°C		
-10	-23	-	1.5 hrs
0	-18	-	1.5 hrs
23	-5	25 min	40 min
32	0	18 min	26 min
41	5	13 min	11 min
68	20	5 min	4 min
86	30	4 min	1.5 min
104	40	2 min	-

¹ Product temperatures must be maintained above 41°F (5°C), with the exception of HIT-ICE which must be above 0°F (-18°C).

Final Cure Time Table (Approximate)¹

Base Material Temperature		HIT HY 150 ²	HIT-ICE
°F	°C		
-10	-23	-	24 hrs
0	-18	-	24 hrs
23	-5	6 hrs	6 hrs
32	0	3 hrs	4 hrs
41	5	90 min	2 hrs
68	20	50 min	1 hrs
86	30	40 min	30 min
104	40	30 min	-

² Use of HIT HY 150 and HIT-TZ rods must be installed in base material temperatures $\geq 40^\circ\text{F}$ (5°C).

Figure 11: Gel and Cure Times for Kwik Bolt 3 (Adhesive Anchor)

Jaypro mandates a minimum of 1/2" diameter anchors. Information supplied here is limited to that size anchor. See Hilti's website or call Hilti directly for information on other size anchors.

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