HardCore Belt Grinder

Installation and Operation Manual for models;

BGB – 2.5
BGB - 4.0
BGB – 6.0

IMPORTANT !!!!

It is the responsibility of the owner of this product to ensure that the user will read and comply with the provisions of this manual, which is intended to be an integral part of your HardCore belt grinder. As operation of this powertool can be hazardous, and even cause serious personal injury, this manual should be kept with the machine at all times for reference by the user, each time prior to use.

Trick-Tools.com
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Pella, IA 50219
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DANGER !!!!

This machine <u>MUST</u> be securely fastened to a suitable work bench, or floor mounted pedestal, prior to operation. In addition, proper work attire (which complies with all applicable federal and / or state laws and regulations) must be worn at all times while operating this machine.

This includes;

1. **Proper eye and/or face protective gear**
2. **Proper respiratory protection**
3. **Proper hand and body protection (i.e. leather work gloves and apron in order to prevent any article of clothing from becoming entangled in the moving parts of the equipment)**

Failure to comply with the above requirements can result in <u>SERIOUS</u> personal injury!

NOTE:
The following instructions refer to the two attached illustrations for component identification.

Preparation;

1. **After unpacking, mount the motor assembly to a suitable floor mounted pedestal or work bench. (provided fasteners may not be adequate)**

Initial Setup;

1. **Rotate the beam assy. to the vertical position by loosening the pivot lock screw.**
2. **Tighten the pivot lock screw to secure the beam.**
3. **Remove the idler wheel screw from the idler support, leaving the spring in place.**
4. **Install the idler guard, making sure that the idler guard screws (2) align with the recesses in the idler support for proper orientation and spacing.**
5. **Re-install the idler wheel screw through the idler guard & into the idler support about 2 turns.**
6. **Install the platen mount assy. to the beam leaving the screws (4) slightly loose for platen adjustment.**
7. **Install the idler wheel assembly and tighten the idler wheel screw with a 3/16 in. allen wrench.**
8. **Install the workrest arm assy. onto the contact support, making sure it is up against the shoulder.**

9. **Remove the nut & washer from the contact shaft.**
10. **Install the contact wheel (inside marked), washer, and nut. Tighten the contact nut (15/16" socket or wrench) by depressing the spring-loaded wheel lock button and rotating the contact wheel until full engagement of the wheel lock is felt. After tightening, release the wheel lock button.**
11. **Using a straight-edge, align the platen with the tangents of the center portions of the contact and idler wheels and tighten the mount screws (4).**
12. **Install the remaining platen screws (2).**
13. **Install the belt guard standoffs (2) to the beam.**
14. **Rotate the take-up lever to the "release" position (towards the motor) and install the desired grinding belt over the center of the idler and contact wheels. Rotate the take-up lever to the "lock" position (away from the motor, until the over-center stop is felt) in order to proceed with initial belt tensioning.**
15. **Adjust for the desired belt tension by rotating the tension knob clockwise (from top) to increase, or counter-clockwise to decrease. Adequate tension is required for the belt to "track" properly. Rotate the idler wheel by hand to make sure that the belt is not tracking too far off of the idler and contact wheels.**
16. **Attach the belt guard to the standoffs using the wing screws (2).**
17. **Adjust the belt guard guide so that the guide engages the hole in the guard, up against the washer, and tighten the jam nut against the beam.**

18. **Verify that both the "Power" and "Run" switches are in the "OFF" position (down) and connect the power cable to a properly grounded outlet.**
19. **Turn the "Power" switch to "ON". This switch enables the motor drive functions (on / off, acceleration, deceleration, etc.). The "Power" indicating lamp (red) will turn on. During this "stand-by" period the motor drive will be using power equivalent to a 20 watt light bulb. Although this is satisfactory for periods when the motor is not running (accessory changes, belt changes, etc.) the "Power" switch should be turned "OFF" when the grinder is not in use for longer periods of time, in order to conserve energy. When attempting to rotate the contact wheel during "stand-by" a slight resistance will be evident.**
20. **Set the "Speed" control knob to about 20%. The attached belt speed chart correlates the speed control settings to actual belt speed (SFM).**
21. **Briefly turn the "Run" switch to "ON" to start the motor and ensure reasonable belt tracking. If the belt tracks evenly with the contact wheel, the motor can be left running for the next step.**
22. **While the motor is running, rotate the track knob to position the belt in the desired location on the contact wheel.**

NOTE:

Excessive tracking adjustments may require slight belt tension adjustments with the tension knob.

23. **Turn the "Run" switch to "OFF" and wait for all motion to stop.**
24. **Attach the workrest assembly to the workrest arm assembly and adjust as required.**

Operational Instructions;

1. **The beam can be re-positioned by loosening the pivot lock screw.**

DANGER

Never loosen the pivot lock while the grinder is running.

NOTE:

Always support the beam when loosening the pivot lock screw. The pivot drag screw (located opposite of the pivot lock screw) can be adjusted to provide adequate friction while the pivot lock is loosened.

2. **Re-tighten the pivot lock.**
3. **When belt changes are required, the belt can easily be removed by turning the "Run" switch to "OFF" (allowing all motion to stop) and removing the belt guard.**
4. **Rotate the take-up lever to the "release" position and remove the belt.**
5. **Install the new belt and rotate the take-up lever to the "lock" position. Tension may vary between different belts.**

6. **Replace the belt guard.**
7. **Turn the "Run" switch to "ON" and adjust for proper tracking, if necessary.**
8. **The contact wheel can be removed / replaced by first removing the belt guard & grinding belt, then depressing the spring-loaded wheel lock button and rotating the contact wheel until full engagement of the wheel lock is felt. After breaking the contact nut loose, release the wheel lock button.**
9. **Install the replacement contact wheel (inside is marked), washer, and nut. Tighten the contact nut by depressing the wheel lock button and rotating the contact wheel until full engagement of the wheel lock is felt. After tightening, release the wheel lock button.**

DO NOT OVER_TIGHTEN!

WARNING

Never attempt to use the wheel lock as a "braking" device while the machine is running as damage to the internal parts WILL occur.

10. **Re-install the grinding belt and belt guard.**

-End of procedure-

HardCore Belt Grinder

Packing Instructions
for models;

BGB - 6.0
BGB - 4.0
BGB - 2.5

1. **Remove the Wing Screws (2) & Belt Guard. Bag & label the Wing Screws.**

2. **Remove the Workrest Assy.**

3. **Remove the Idler Wheel Assy.**

4. **Remove the Contact Wheel.**

5. **Bag & label the Contact Nut & Washer.**

6. **Remove the Workrest Arm Assy.**

7. **Remove the Belt Guard Guide (3 pcs), bag & label.**

8. **Remove the Belt Guard Standoffs (2).**

9. **Remove the inside Platen Screws (2), bag & label.**

10. **Remove the Platen Mount Screws (4) & Platen Mount, bag & label the Platen Mount Screws.**

11. **Remove the Idler Guard.**

12. **Replace the Idler Wheel Screw.**

-End of procedure-

HardCore Belt Grinder

Service Manual for models;

BGB – 2.5
BGB – 4.0
BGB – 6.0

DANGER !!!!

Be sure that the grinder is un-plugged from the wall power source prior to any disassembly / assembly

NOTE:
Before proceeding with the following procedure it is imperative that the operator fully understands the installation / operation manual

Fastener / Hardware Abbreviations;

DP	**Dowel Pin**
FHSC	**Flat Head Socket Cap screw**
FW-NAS640	**Flat Washer – Mil Spec**
FW-NAS1140	**Flat Washer – Mil Spec**
FW-NEO	**Flat Washer – Neoprene**
FW-TFE	**Flat Washer – Teflon**
FW-USS	**Flat Washer – US Standard**
HCS	**Hex Cap Screw**
HN	**Hex Nut**
HN-EL	**Hex Nut – Elastic Lock**
HN-J	**Hex Nut – Jam**
HN-ML-T	**Hex Nut – Mech. Lock - Thin**
LW-S	**Lock Washer – Split**
SHCS	**Socket Head Cap Screw**
SSS	**Socket Set Screw**

NOTE:
The following instructions refer to the attached illustrations for component identification. Figures 6 thru 8 are for reference only.

Disassembly Instructions

1. **Position the beam at about 45 degrees.**
2. **Remove the workrest assembly. (Fig. 5)**
3. **Remove the wing screws (2) and belt guard.**
4. **Remove the grinding belt.**
5. **Remove the contact wheel nut & washer.**
6. **Remove the contact wheel.**
7. **Remove the belt guard standoffs (2).**
8. **Remove the belt guard guide w/nut & washer.**
9. **Remove the platen screws (4 or 8) & platen.**
10. **Remove the workrest arm assembly. (Fig. 4)**
11. **Remove the platen mount screws (4) & mount.**
12. **Loosen the idler wheel screw (3/16 allen) and remove the idler wheel assembly.**
13. **Remove the idler wheel screw.**
14. **Back-off the idler guard screws (2) two turns and remove the idler guard.**
15. **Remove the idler seal spring and idler seal plate (with idler seal) from the idler support.**
16. **Remove the tension knob screw by holding the knob with a strap wrench and turning the screw counter-clockwise (from top) with a 5/16 in. allen wrench.**
17. **Loosen the tension knob by holding the knob with a strap wrench and turning the tension bushing clockwise with a 3/8 in. allen wrench, and remove.**
18. **Remove the tension knob spring, tension seal retainer, & tension knob seal.**
19. **Remove the take-up lever screw and remove the take-up lever and take-up shaft seal.**

20. **Position the beam horizontally.**
21. **Remove the cap plugs (2) from the beam. (Fig. 3)**
22. **Use a 9/16 in. socket to loosen the drive belt tension nuts (2) just until belt tension is released. (Fig. 1)**
23. **Remove the 1/4 in. (10) and 5/16 in. (2) beam screws. (Fig. 3) The outside beam should remain in place, supported by dowel pins.**
24. **Carefully remove the outside beam assembly, making sure to keep the tension slide assembly attached to the inside beam. The drive belt is also disengaged at this time.**
25. **Rotate the track knob until the tension bushing can just be removed from the tension slide assembly.**
26. **Remove the tension slide assembly by lifting the tension shaft off of the take-up shaft assy. and out, in order to disengage the slide from the track stud.**
27. **Remove the take-up shaft assembly.**
28. **Remove the track stud from the track knob. (Fig.1)**
29. **Remove the retaining ring from the track knob.**
30. **Remove the track knob & washer.**
31. **Remove the wheel lock assy. (special tool required)**
32. **Remove the drive belt tension nuts (2), lock washers (2), and flat washers (2).**
33. **Remove the inside beam from the motor pivot.**
34. **Remove the pivot lock screw, lock washer, and flat washer.**
35. **Remove the pivot drag screw, lock washer, and flat washer.**
36. **Remove the motor pivot from the motor.**
37. **Remove the set screws (2) from the motor sheave.**

38. **Remove the motor sheave from the motor shaft. (gear puller required)**
39. **Remove the key from the motor shaft.**
40. **Remove the contact sheave nut by holding the sheave with a strap wrench. (Fig. 2)**
41. **Remove the flat washer, sheave, & woodruff key.**
42. **Remove the screws (3) and remove the contact shaft assembly from the outside beam.**

- End of Procedure -

Assembly Instructions

Note:
Be sure to observe where lubrication (grease) is required as shown in the illustrations.

1. **Place the motor pivot onto the motor (studs level) and attach the pivot lock screw, lock washer, and flat washer, into the threaded motor hole at the 10:00 position. (Fig. 1)**
2. **Attach the pivot drag screw, lock washer, and flat washer at the 4:00 position.**
3. **Place the motor sheave and drive key onto the motor shaft.**
4. **Tighten the motor sheave set screws (2) securely so that the distance from the motor pivot face to the outside of the sheave is 1.275 inches.**
5. **Place the inside beam onto the motor pivot studs and attach <u>new</u> drive belt tension flat washers, lock washers, and nuts. (Light snug only as beam must be able to slide)**
6. **Attach the track knob & washer to the inside beam and secure with the retaining ring.**
7. **Thread the track stud into the track knob about 2 turns, aligning the flats with the long axis of the inside beam.**
8. **Check that the wheel lock is properly attached to the inside beam.**
9. **Install the dowel pins (2) onto the inside beam.**
10. **Position the beam horizontally.**

11. **Place the contact support assy. into the outside beam & tighten the fasteners (3). (Fig. 2)**
12. **Install the woodruff key, contact sheave, flat washer, and <u>new</u> lock nut.**
13. **Tighten the lock nut by holding the sheave with a strap wrench, then verify freedom of rotation.**
14. **Place the take-up shaft assy. into the bushing of the inside beam & rotate counter-clockwise. (Fig. 3)**
15. **Place the tension slide assy. t-slot onto the track stud and position the slide dowel pins into the slots on the inside beam. (It may be necessary to lift the tension shaft over the take-up shaft assy. bearing)**
16. **Place the tension bushing onto the tension shaft.**
17. **Rotate the track knob until the tension slide is parallel with the inside beam, taking care to engage the tension bushing correctly with the beam.**
18. **Position the drive belt onto the motor sheave so that the belt remains inside of the beam cavity.**
19. **While maintaining tension on the drive belt, install the outside beam assy. making sure that the contact sheave is fully engaged and centered with the belt. This is best achieved by "hanging" the outside beam over the idler support, then pulling the far end of the belt out of the inside beam (slightly) in order to position it over the contact sheave.**
20. **Maintaining tension on the belt, slide the inside beam so that the dowel pins engage and the beams come together. The tension slide and take-up shaft will also align with the outside beam at this time.**

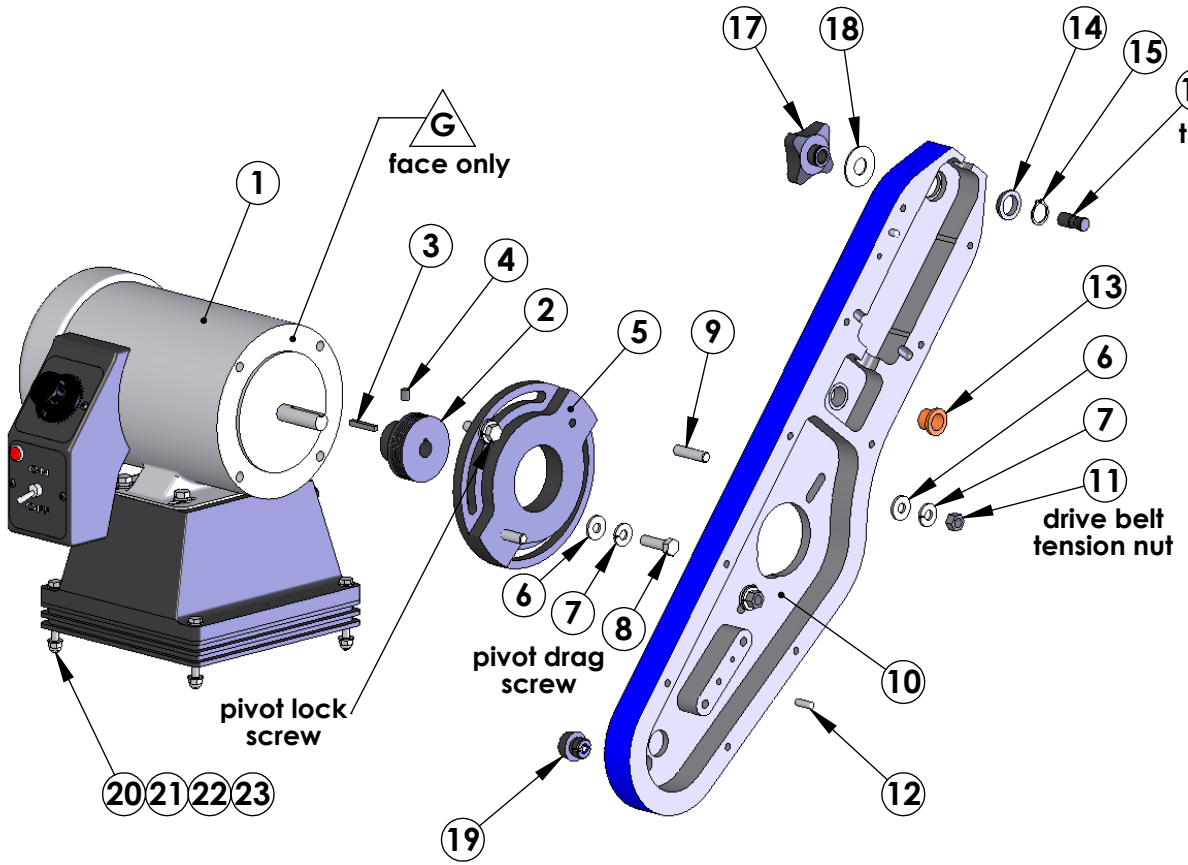
21. **Continue to maintain belt tension and separate the beams slightly. Rotate the contact shaft to visually ensure correct drive belt alignment.**
22. **Push the beams back together and rotate the beam to a vertical position, which will provide some drive belt tension.**
23. **Install and tighten the 1/4 in. (10) & the lower of the 5/16 in. beam screws.**
24. **Start the upper 5/16 in. beam screw 2 turns.**
25. **From the front side of the grinder, position a lever (a long screwdriver will work) on top of the head of the 5/16 in. screw & underneath the rear of the motor pivot, up against the inside beam. Adjust the drive belt tension by applying force in the appropriate direction and tightening the upper belt tension nut.**
26. **Rotate the contact shaft by hand to ensure that the drive belt is tensioned and aligned correctly. (Belt tension can be verified by reaching into the cap plug hole on the outside beam with your finger)**
27. **Re-tighten both drive belt tension nuts securely.**
28. **Tighten the remaining 5/16 in. beam screw.**
29. **Connect the power source and turn on the motor. Check that there are no vibrations or rumbling in order to verify correct assembly to this point.**
30. **Turn off the motor and remove the power source.**
31. **Install the cap plugs (2) into the outside beam.**
32. **Place the tension seal retainer (with tension knob seal) and tension knob spring onto the tension bushing. (Fig. 4)**

33. **Install the tension knob and tighten (holding the knob with a strap wrench) by turning the bushing counter-clockwise with a 3/8 in. allen wrench.**
34. **Install the tension knob screw and tighten (holding the knob with a strap wrench) by turning the screw clockwise with a 5/16 in. allen wrench.**
35. **Attach the take-up lever (with seal) to the take-up shaft so that the lever is parallel with the long axis of the beam (when in the "lock" position) and tighten the screw.**
36. **Place the idler seal plate (with seal) and idler seal spring onto the idler support.**
37. **Install the idler guard, making sure that the set screws (2) align with the recesses in the idler support for proper orientation and spacing.**
38. **Install the idler wheel screw through the idler guard & into the idler support about 2 turns.**
39. **Install the platen mount to the beam leaving the screws (4) slightly loose for platen adjustment.**
40. **Install the platen to the platen mount, leaving the 2 inside screws for later.**
41. **Install the idler wheel assembly and tighten the idler wheel screw with a 3/16 in. allen wrench.**
42. **Install the workrest arm assy. onto the contact support, making sure it is up against the shoulder.**
43. **Install the contact wheel, washer, and nut.**
44. **Using a straight-edge, align the platen with the tangents of the center portions of the contact and idler wheels and tighten the mount screws (4).**
45. **Install the remaining platen screws (2).**
46. **Install the belt guard standoffs (2) to the beam.**

47. **Install the belt guard guide w/nut & washer, leaving about 1 in. from the beam to the outside.**
48. **Install the desired grinding belt.**
49. **Adjust for the desired belt tension.**
50. **Attach the belt guard to the standoffs using the wing screws (2).**
51. **Adjust the belt guard guide so that the guide engages the hole in the guard, up against the washer, and tighten the jam nut against the beam.**
52. **Attach the workrest assembly to the workrest arm assembly and adjust as required.**

- End of Procedure -

Figure 1



Item #	Qty.	Part #	Description
1	1	73-9091	Motor Assy. - BGV
2	1	73-2601	Motor Sheave - BGV
3	1	N/A	Key, 3/16 x 3/16 x 1-3/8
4	2	N/A	SSS, 5/16-18 x 3/8
5	1	71-2542	Motor Pivot
6	4	N/A	FW-USS, 5/16
7	4	N/A	LW-S, 3/8
8	2	N/A	HCS, 3/8-16 x 1-1/4
9	2	N/A	Mill Stud, 3/8-16 x 1-1/2
10	1	72-2504	Inside Beam - BGB
11	2	N/A	HN, 3/8-16
12	2	N/A	DP, 1/4 x 1/2
13	1	N/A	Bushing-F, 5/8 x 3/4 x 5/8
14	1	71-2030	Track Bushing
15	1	N/A	Ret.Ring-EXT, 3/4
16	1	71-2632	Track Stud
17	1	71-2531	Track Knob
18	1	N/A	FW-TFE, 5/8 x 1-1/2
19	1	71-8045	Wheel Lock Assy.
20	4	N/A	HCS, 1/4-20 x A/R
21	A/R	N/A	LW-S, 1/4
22	A/R	N/A	FW-USS, 3/16
23	A/R	N/A	HN-EL, 1/4-20

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HardCore Products

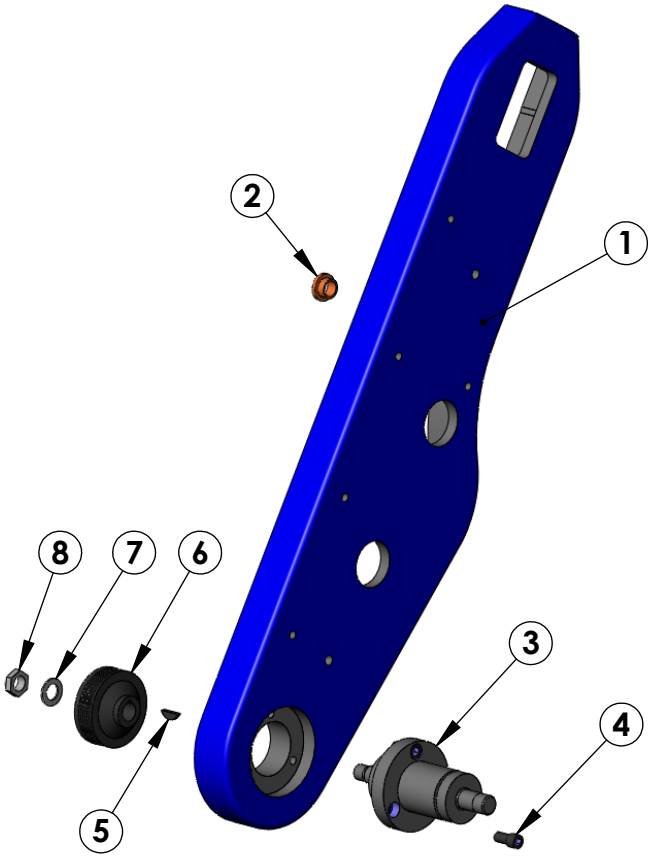
INSIDE BEAM ASSEMBLY

BGB-2.5 (4.0 & 6.0) - SM

PART NO: **00-0000** REV: **A**

CAD FILE: Assy,Inside Beam-2.5-BGB-mda-X SHEET: **1 of 1**

Figure 2



Item #	Qty.	Part #	Description
1	1	72-2505	Outside Beam - BGB
2	1	N/A	Bushing-F, 1/2 x 5/8 x 1/2
3	1	72-8023	Contact Support Assy.- 2.5
(3)	1	72-8027	Contact Support Assy.- 4.0, 6.0
4	3	N/A	SHCS, 5/16-18 x 5/8
5	1	N/A	Key-Woodruff, #506
6	1	71-2640	Contact Sheave
7	1	N/A	FW-NAS1149, 1/2 x .06
8	1	N/A	HN-ML-T, 1/2-20

Assy,Outside Beam-2.5-BGB-mda-X

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HardCore Products

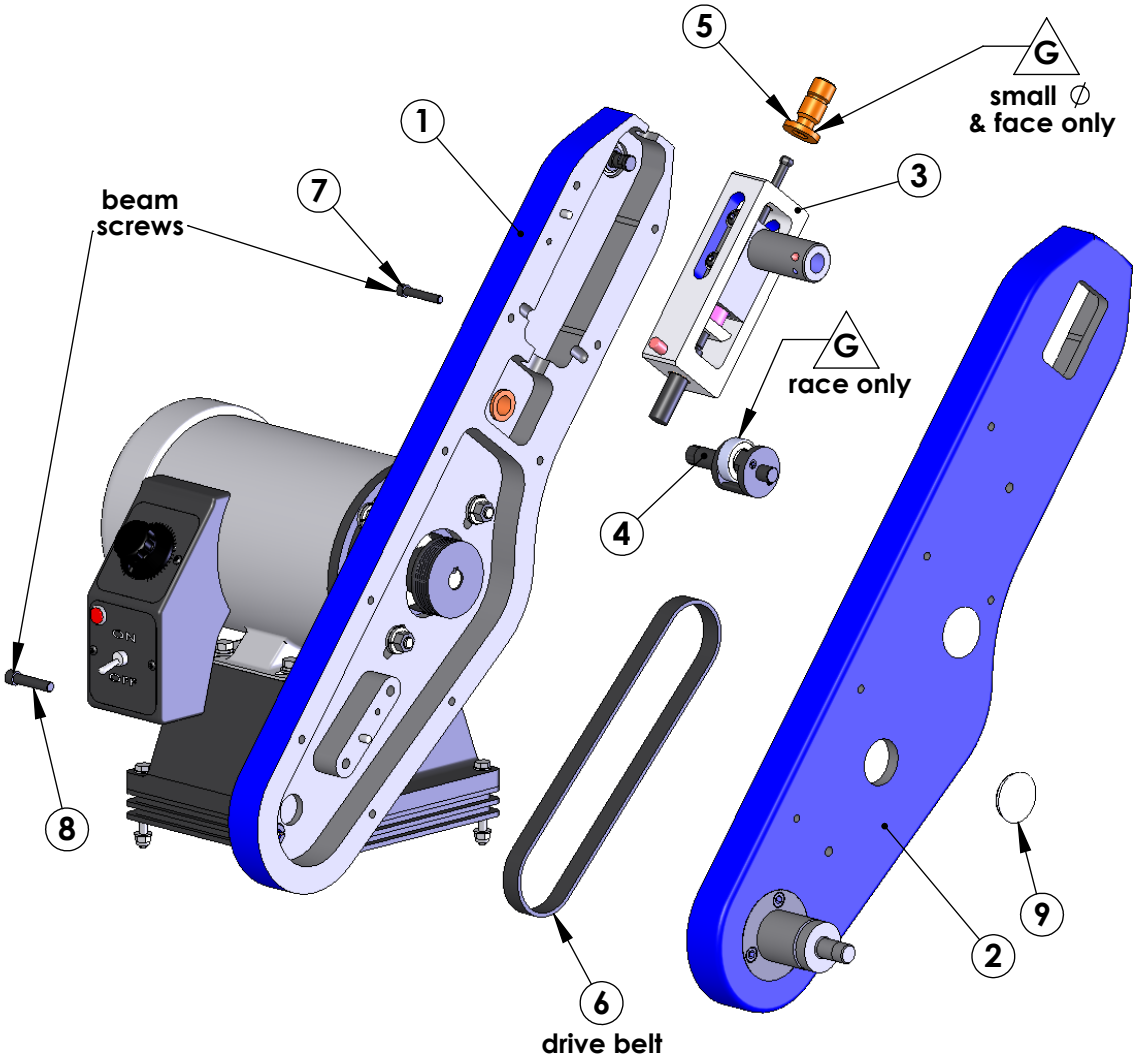
OUTSIDE BEAM ASSEMBLY

BGB-2.5 (4.0 & 6.0) - SM

PART NO: **00-0000** REV: **A**

CAD FILE: SHEET: **1 of 1**

Figure 3



Item #	Qty.	Part #	Description
1	1	N/A	Inside Beam Assy.
2	1	N/A	Outside Beam Assy.
3	1	71-8013	Tension Slide Assy.
4	1	71-8024	Take-up Shaft Assy.
5	1	71-2004	Tension Bushing
6	1	N/A	Belt, 260-J6
7	10	N/A	SHCS, 1/4-20 x 1-1/2
8	2	N/A	SHCS, 5/16-18 x 1-1/2
9	2	N/A	Cap Plug, 1-1/2

Assy,Total Beam-2.5-BGB-mda-X

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HardCore Products

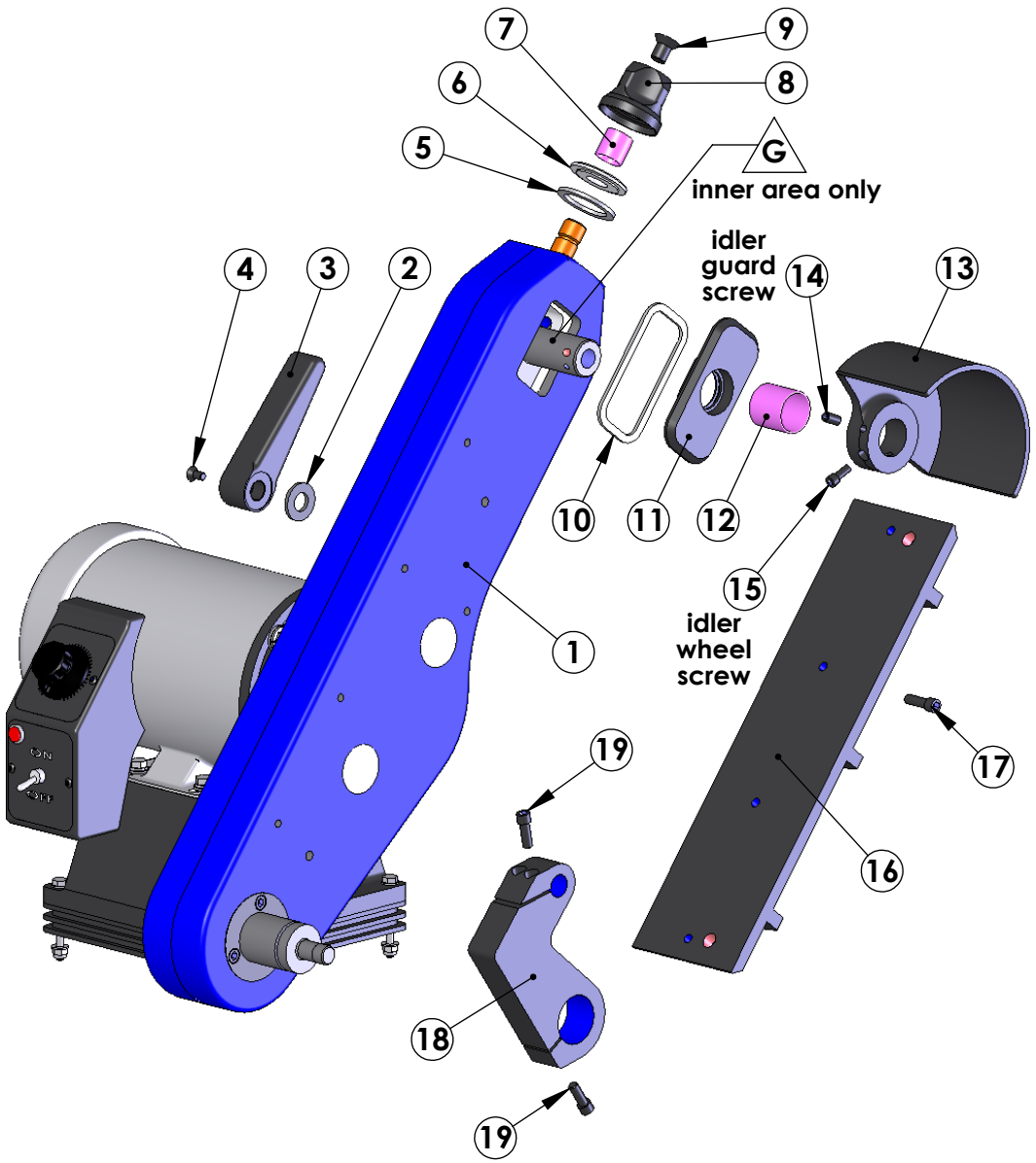
BEAMS - ASSEMBLY

BGB-2.5 (4.0 & 6.0) - SM

PART NO: **00-0000** REV: **A**

CAD FILE: SHEET: **1 of 1**

Figure 4



Item #	Qty.	Part #	Description
1	1	N/A	Beams - Assy.
2	1	71-2023	Take-up Shaft Seal
3	1	71-2522	Take-up Lever
4	1	N/A	FHSC, 1/4-20 x 1/2
5	1	71-2007	Tension Knob Seal
6	1	71-2009	Tension Seal Retainer
7	1	71-6014	Tension Knob Spring
8	1	71-2506	Tension Knob
9	1	N/A	FHSC, 1/2-20 x 3/4
10	1	71-2000	Idler Seal
11	1	71-2501	Idler Seal Plate (w/O-ring)
12	1	71-6015	Idler Seal Spring
13	1	72-2844	Idler Guard - 2.5
(13)	1	72-2845	Idler Guard - 4.0
(13)	1	72-2846	Idler Guard - 6.0
14	2	N/A	SSS, 5/16-18 x 5/8
15	1	N/A	SHCS, 1/4-20 x 3/4 (w/flat)
16	1	72-2563	Platen Mount - 2.5
(16)	1	72-2564	Platen Mount - 4.0
(16)	1	72-2565	Platen Mount - 6.0
17	4	N/A	SHCS, 5/16-18 x 1
18	1	72-2573	Workrest Arm
19	4	N/A	SHCS, 5/16-18 x 7/8

Assy,Total Comp1-2.5-BGB-mda-X

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HardCore Products

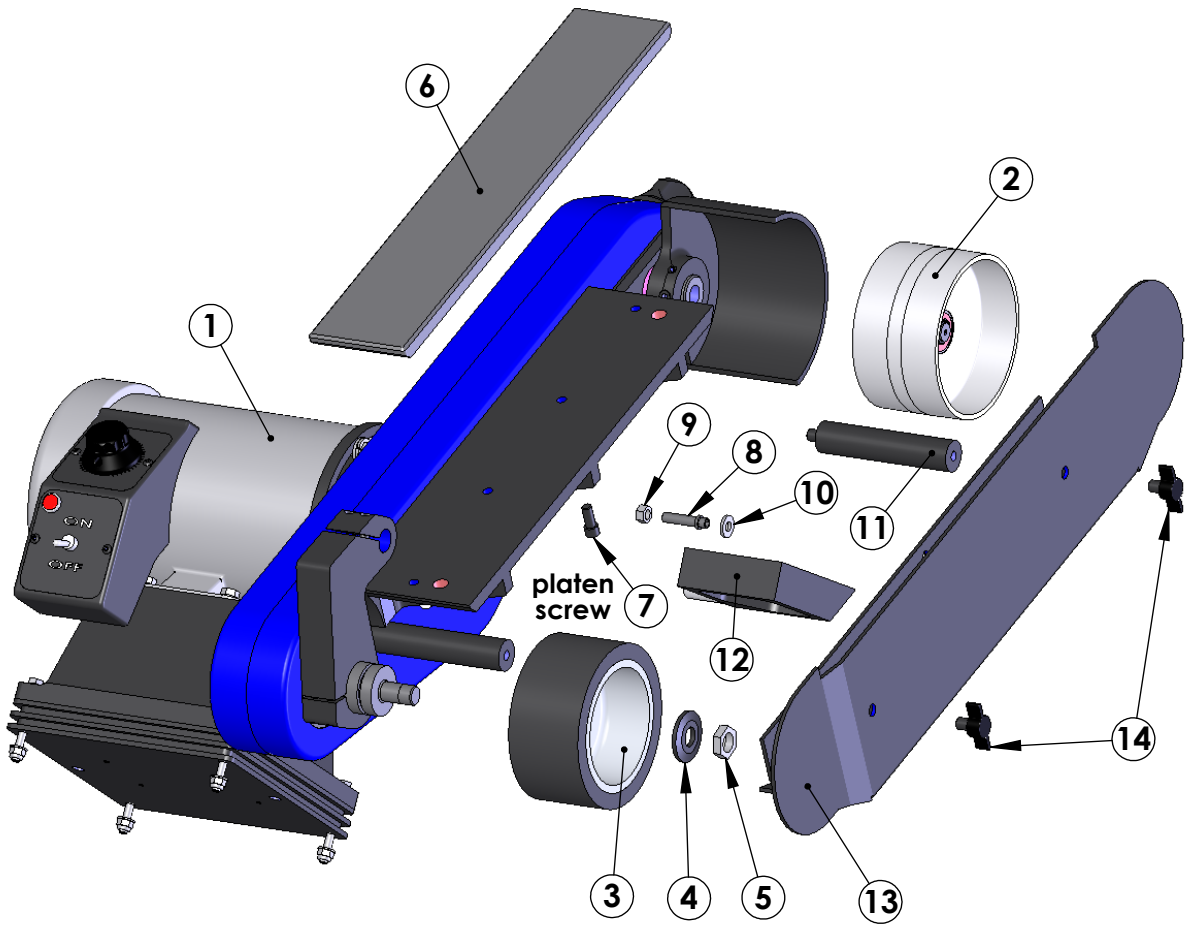
COMPLETE ASSEMBLY-1

BGB-2.5 (4.0 & 6.0) - SM

PART NO: **00-0000** REV: **A**

CAD FILE: SHEET: **1 of 1**

Figure 5



1	1	N/A	Complete Assy. - 1
2	1	72-9095	Idler Wheel Assy.- 2.5
(2)	1	72-9096	Idler Wheel Assy.- 4.0
(2)	1	72-9097	Idler Wheel Assy.- 6.0
3	1	72-9091	Contact Wheel Assy.- 2.5
(3)	1	72-9092	Contact Wheel Assy.- 4.0
(3)	1	72-9093	Contact Wheel Assy.- 6.0
4	1	71-2641	Contact Wheel Washer
5	1	N/A	HN-J, 5/8-18 - 304
6	1	72-2660	Platen - 2.5
(6)	1	72-2661	Platen - 4.0
(6)	1	72-2662	Platen - 6.0
7	4	N/A	SHCS, 5/16-18 x 3/4
(7)	(8)	N/A	SHCS, 5/16-18 x 3/4
8	1	72-2053	Belt Guard Guide
9	1	N/A	HN, 5/16-18
10	1	N/A	FW-NEO, 5/16 x 11/16 x .09
11	2	72-2554	Belt Guard Standoff Assy.- 2.5
(11)	2	72-2555	Belt Guard Standoff Assy.- 4.0
(11)	2	72-2556	Belt Guard Standoff Assy.- 6.0
12	1	72-8075	Workrest Assy.- 2.5
(12)	1	72-8076	Workrest Assy.- 4.0
(12)	1	72-8077	Workrest Assy.- 6.0
13	1	72-2850	Belt Guard - 2.5
(13)	1	72-2851	Belt Guard - 4.0
(13)	1	72-2852	Belt Guard - 6.0
14	2	72-2080	Wing Screw Assy.

Assy,Total Comp2-2.5-BGB-mda-X

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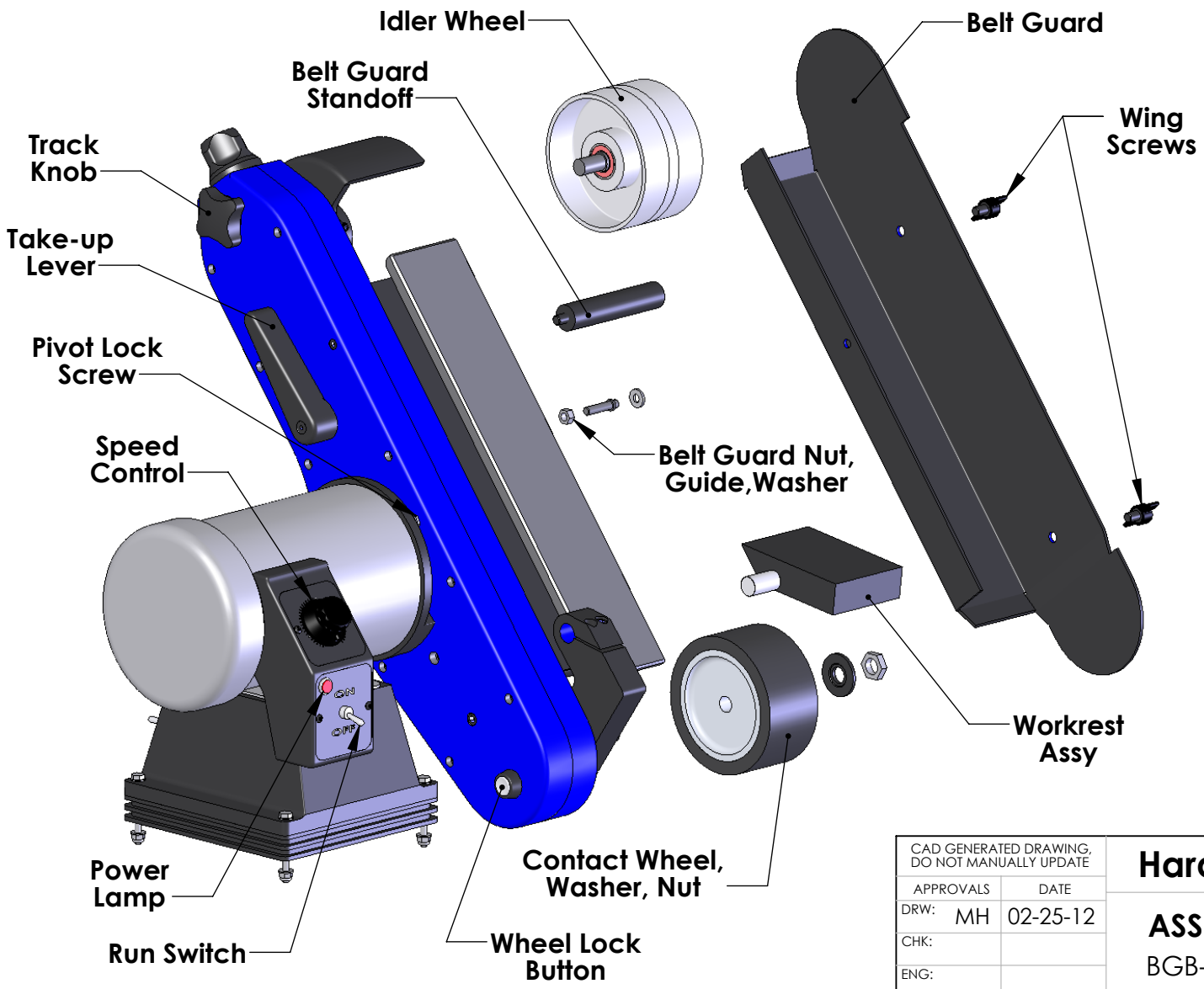
HardCore Products

COMPLETE ASSEMBLY-2

BGB-2.5 (4.0 & 6.0) - SM

PART NO: **00-0000** REV: **A**

CAD FILE: SHEET: **1 of 1**



CAD GENERATED DRAWING, DO NOT MANUALLY UPDATE		
APPROVALS		DATE
DRW:	MH	02-25-12
CHK:		
ENG:		
MFG:		
Q/A:		

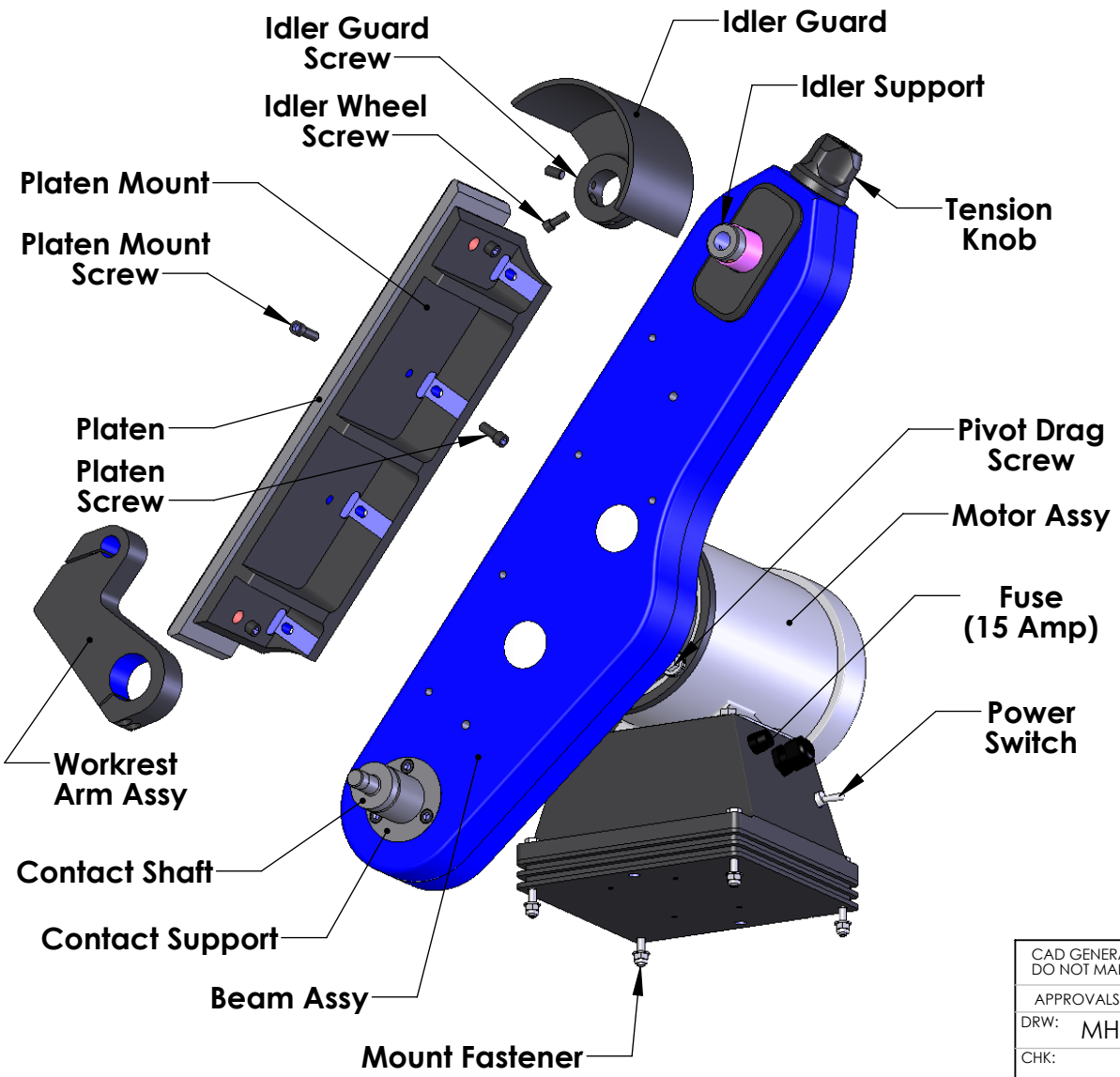
HardCore Products

ASSEMBLY DIAGRAM

BGB-2.0 (4.0 & 6.0) - IOM

PART NO: **00-0000** REV: **A**

CAD FILE: Assy,Total Comp2-2.5-BGB-mio-X SHEET: **2 of 2**



Assy,Total Comp1-2.5-BGB-mio-X

CAD GENERATED DRAWING, DO NOT MANUALLY UPDATE		**HardCore Products**	
APPROVALS	DATE		
DRW: MH	02-25-12	**ASSEMBLY DIAGRAM**	
CHK:		BGB-2.5 (4.0 & 6.0) - IOM	
ENG:			
MFG:		PART NO: **00-0000**	REV: **A**
Q/A:		CAD FILE:	SHEET: **1 of 2**