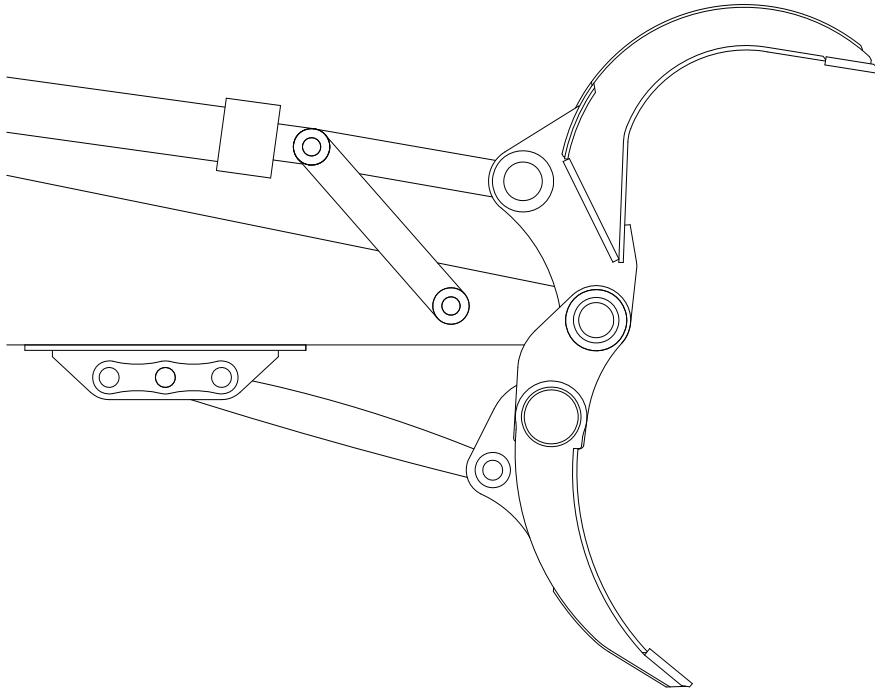




TECHNICAL MANUAL

Manual Part Number 572735



ABG
B-Series
Grapple

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**SECTION 1.0
INTRODUCTION**

ABG Series Grapple Technical Manual: 572735

Technical Manual is applicable to Grapple Models: ABG 30B-2, ABG 40B-2, ABG 50B-2, ABG 70B-2 and ABG 90B-2,

Years of Manufacture: 2007 and beyond

Serial Number: 00001 and above.

This manual contains important information for the safe use and maintenance of the Allied ABG B-Series Grapples. Read this manual thoroughly before installing, operating or servicing the Allied Grapple. This manual must be easily accessible to operators, or service and transport personnel. Store this manual in a convenient location.

Pay careful attention to all instructions and follow all governing regulations. Operation or service other than in accordance with these instructions may subject the Allied Grapple to conditions beyond its design capability. Improper operation, service or the use of non-Allied parts may result in Allied Grapple failure or personnel injury.

1.1 Safety Information

When using the Allied Grapple, safety procedures must be followed. See Section 4.0 for further safety guidelines.

Pay particular attention to WARNINGS and CAUTIONS, identified with this symbol



These instructions are important for personnel safety and full service life of the Allied Grapple. Follow them carefully.

1.2 Warranty Information

Warranty coverage of the Allied Grapple depends on proper maintenance and operation as detailed in this manual. Improper maintenance or operation shall void Allied Grapple warranty coverage.

1.3 Allied Product Policies

Allied reserves the right to make modifications to the design or changes to the specifications without prior notice.

In this manual, Allied recommends Grapple applications, maintenance and service consistent with industry practices. Allied takes no responsibility for the results of actions not recommended in this manual and specifically the results of:

- Operation in non-recommended applications
- Incorrect operation
- Improper maintenance
- Use of service parts not approved or supplied by Allied.

These exclusions apply to damage to the Allied Grapple, associated equipment, and injury to personnel.

**SECTION 2.0
OVERVIEW**

Allied ABG B-Series Grapples are designed for use on medium to large excavators. The carrier must have adequate lift capacity to properly and safely operate the Grapple. Refer to Section 3.0 Specifications for carrier weights.

The Allied Grapple is mounted in place of the carrier bucket, and operates using the bucket cylinder. A Mounting Pad is welded to the bottom of the stick section of the carrier as part of the installation. A Stiff Arm is pinned between the Mounting Pad and the Lower Jaw of the grapple. The Mounting Pad has three pin locations for positioning the Lower Jaw.

An Allied Mounting Kit is required to install the Grapple. Mounting Kits include pins and bushings that allow the grapple to be mounted to a specific carrier in the appropriate weight class.

Allied Grapples are available in five sizes: ABG 30B-2, ABG 30B-2, ABG 50B-2, ABG 70B-2 & ABG 90B-2. The Model Number signifies the following:

Model Identification Example:

ABG 90B-2

A = Allied

B = Box Type Construction

G = Grapple

90 = 90,000 Lb. Carrier Class

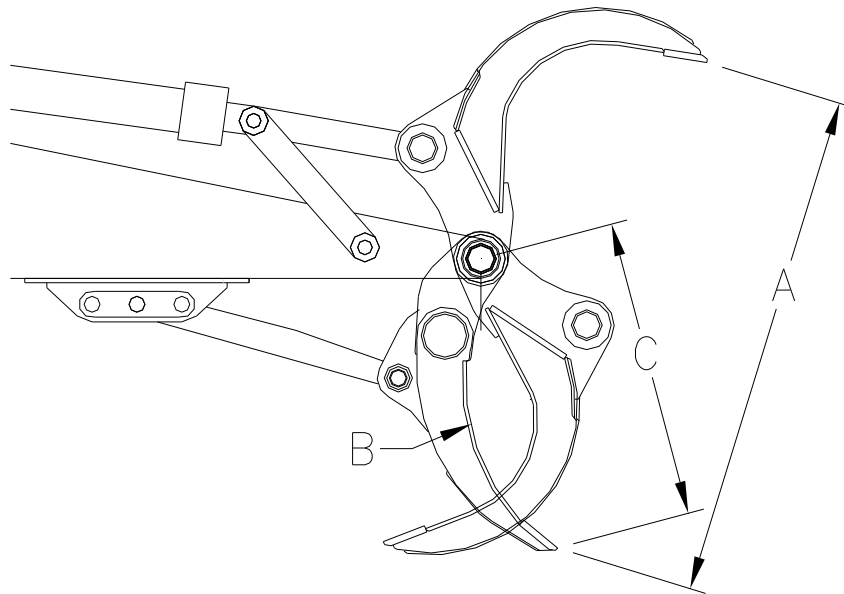
B = B-Series

2 = Number of tines on upper jaw

Once the grapple has been installed on the carrier, it has the capability of ripping and tearing down structures as well as picking and placing, sorting, raking, loading and unloading material with a positive gripping action provided by the grapple tines.

SECTION 3.0 TECHNICAL INFORMATION

3.1 Specifications & Dimensions

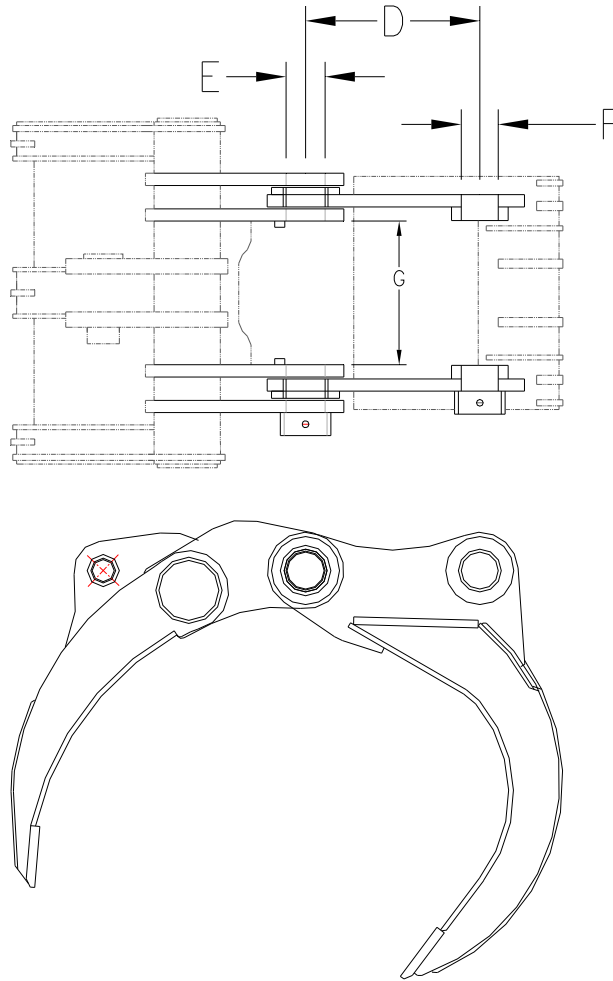


| Grapple Assemblies | 30B-2 | | 40B-2 | | 50B-2 | | 70B-2 | | 90B-2 | | 140B-2 | |
|--|-------------|----------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|
| | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm |
| Jaw Opening ^{*1} (A) (at 150° jaw opening) | 72 | 1829 | 82 | 2083 | 91 | 2311 | 99 | 2515 | 107 | 2718 | 140 | 3556 |
| Jaw Closed (B) | 9.0 | 229 | 10.6 | 269 | 12.1 | 317 | 11.3 | 287 | 12.0 | 305 | 17.5 | 445 |
| Grapple Height (C) | 43 | 1092 | 49 | 1245 | 54 | 1372 | 59 | 1499 | 64 | 1626 | 82 | 2083 |
| | lb | kg | lb | kg | lb | kg | lb | kg | lb | kg | lb | kg |
| Grapple Assembly Weight | 1920 | 871 | 2630 | 1193 | 3600 | 1633 | 4250 | 1928 | 5500 | 2495 | 9450 | 4288 |
| | ton | ton (kg) | ton | ton (kg) | ton | ton (kg) | ton | ton (kg) | ton | ton (kg) | ton | ton (kg) |
| Min. Carrier Weight | 25 | 11 | 35 | 16 | 45 | 20 | 60 | 27 | 80 | 36 | 120 | 54 |
| Max. Carrier Weight | 35 | 16 | 45 | 20 | 60 | 27 | 80 | 36 | 110 | 50 | 150 | 68 |

*1- Full jaw opening is carrier linkage geometry dependent.

Figure 3.1.1
ABG-B Series Grapple Dimensions Grapple Weight
and Recommended Carrier Weight

3.1 Specifications & Dimensions (continued)

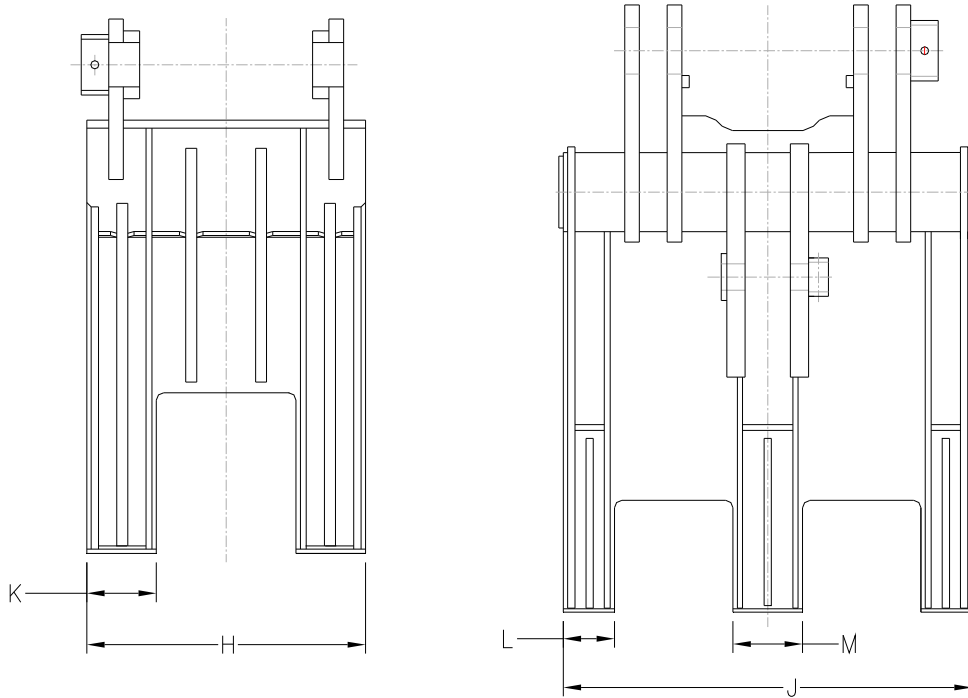


| Grapple Assemblies | 30B-2 | | 40B-2 | | 50B-2 | | 70B-2 | | 90B-2 | | 140B-2 | |
|-------------------------------|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|--------|----|
| | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm |
| Pin Centers (D) | 21.50 | 546 | 21.50 | 546 | 22.38 | 568 | 22.38 | 568 | 22.75 | 578 | *2 | *2 |
| Stick Pin Dia. (E) (max) | 3.94 | 100 | 3.94 | 100 | 4.33 | 110 | 4.33 | 110 | 4.72 | 120 | *2 | *2 |
| Link Pin Dia. (F) (max) | 3.54 | 90 | 3.54 | 90 | 3.94 | 100 | 3.94 | 100 | 4.72 | 120 | *2 | *2 |
| Inside Lug Width (G) (max) | 15.50 | 394 | 15.50 | 394 | 18.63 | 473 | 18.63 | 473 | 20.31 | 516 | *2 | *2 |

*2 – Carrier dependent dimensions

Figure 3.1.2: Mounting Lug Dimensions

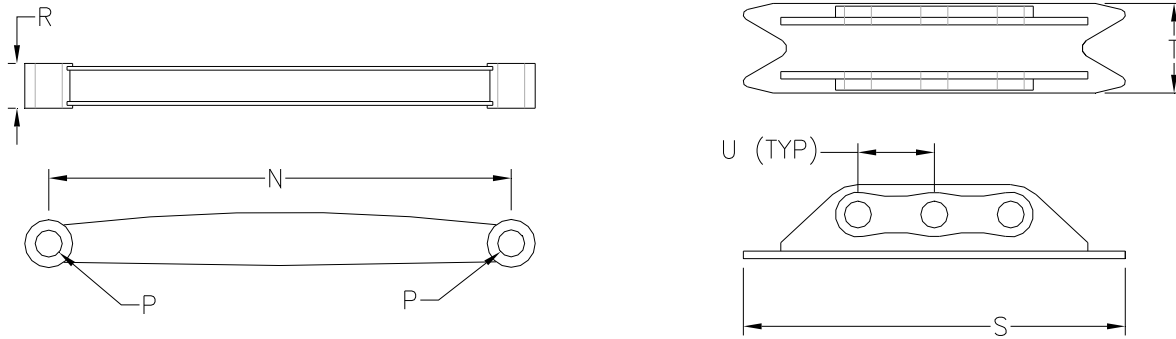
3.1 Specifications & Dimensions (continued)



| Upper & Lower Jaw | 30B-2 | | 40B-2 | | 50B-2 | | 70B-2 | | 90B-2 | | 140B-2 | |
|---------------------------------|-------|-----|-------|------|-------|------|-------|------|-------|------|--------|------|
| | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm |
| Upper Jaw Width (H) | 23.0 | 584 | 30.0 | 762 | 30.0 | 762 | 32.0 | 813 | 34.0 | 864 | 35.5 | 902 |
| Lower Jaw Width (J) | 34.5 | 876 | 44.0 | 1118 | 44.0 | 1118 | 48.0 | 1219 | 51.5 | 1308 | 60.0 | 1524 |
| Upper Jaw Tine Width (K) | 5.9 | 150 | 7.5 | 191 | 7.5 | 191 | 8.1 | 206 | 8.7 | 221 | 10.0 | 254 |
| Lower Jaw Outer Tine Width (L) | 4.3 | 109 | 5.5 | 140 | 5.5 | 140 | 5.9 | 150 | 7.17 | 182 | 10.0 | 254 |
| Lower Jaw Center Tine Width (M) | 6.0 | 152 | 7.5 | 191 | 7.5 | 191 | 8.1 | 206 | 8.7 | 221 | 10.0 | 254 |

Figure 3.1.3: Upper & Lower Jaw Dimensions

3.1 Specifications & Dimensions (continued)



| Stiff Arm Dimensions | 30B-2 | | 40B-2 | | 50B-2 | | 70B-2 | | 90B-2 | | 140B-2 | |
|---------------------------|-------|-----|-------|------|-------|------|-------|------|-------|------|--------|------|
| | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm |
| Stiff Arm Pin Centers (N) | 39.0 | 990 | 43.31 | 1100 | 48.62 | 1235 | 56.50 | 1435 | 66.14 | 1680 | 55.00 | 1397 |
| Stiff Arm Pin Dia. (P) | 2.36 | 60 | 2.56 | 65 | 2.83 | 72 | 3.15 | 80 | 3.50 | 89 | 3.00 | 76 |
| Stiff Arm Width (R) | 3.94 | 100 | 4.33 | 110 | 4.72 | 120 | 5.28 | 134 | 5.90 | 150 | 4.50 | 114 |

| Mounting Pad Dimensions | 30B-2 | | 40B-2 | | 50B-2 | | 70B-2 | | 90B-2 | | 140B-2 | |
|------------------------------------|-------|-----|-------|-----|-------|------|-------|------|-------|------|--------|------|
| | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm |
| Overall Length (S) | 32.0 | 813 | 36.1 | 917 | 40.2 | 1021 | 53.2 | 1351 | 59.1 | 1501 | 88.0 | 2235 |
| Overall Width (T) | 7.60 | 193 | 8.50 | 216 | 9.45 | 240 | 10.90 | 277 | 10.87 | 275 | 13.00 | 330 |
| Position Centers ^{*3} (U) | 6.42 | 163 | 7.25 | 184 | 8.00 | 203 | 9.10 | 231 | 10.40 | 264 | 8.00 | 103 |

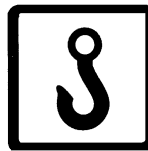
*3 – Number of mounting positions: ABG30B through ABG90B: 3, ABG-140B: 4.

Figure 3.1.4: Stiff Arm & Mounting Pad Dimensions

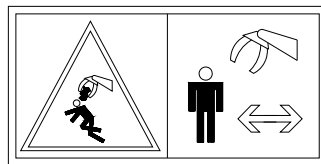
3.2 Decal Identification



The ID PLATE (Identification Plate) contains the following information: Manufacturer’s name and address Product Name Model Number Serial Number



The LIFT POINT decal identifies the location of the recommended lifting points of the Allied Grapple.



The STAY CLEAR decal indicates that personnel and by-standers are to maintain a safe distance from the Allied Grapple during operation.



The READ INSTRUCTION decal indicates that it is important for the operator to read the manual prior to transporting installing operating or servicing the Allied Grapple.

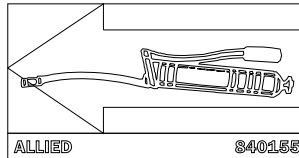
3.2 Decal Identification (continued)



The ALLIED LOGO decal is the Allied brand identifier and is a registered trademark of Allied Construction Products LLC.

ABG XXB-2

The MODEL NUMBER decal indicates the Allied Grapple model number.



The LUBE POINT decal indicates lube fittings to be greased per the Maintenance schedule.

3.3 Decal Lifting and Lubrication Diagrams

| Table 3.3.1 ABG B-Series Grapple Decal Kit P/N 573275 | | | |
|--|------------|-----------------|---------------------------------|
| ITEM | QTY | PART NO. | DESCRIPTION |
| 1 | 1 | 840154 | Name Plate - Grapple |
| 2 | 2 | 840155 | Decal – Lube Point |
| 3 | 4 | 676982 | Decal – Lift Point |
| 4 | 1 | 676984 | Decal – Read Instruction Manual |
| 5 | 2 | 840156 | Decal – Caution Grapple |
| 6 | 2 | 676651 | Decal – ALLIED Logo |

The following decals must be ordered separately according to the grapple model number:

| Table 3.3.2 Grapple Number Decals - ABG B-Series | | | |
|---|------------|-----------------|--|
| ITEM | QTY | PART NO. | DESCRIPTION |
| 7 | 1 | 572821 | Decal – Grapple Model Number – ABG30B-2 |
| 7 | 1 | 572822 | Decal – Grapple Model Number – ABG40B-2 |
| 7 | 1 | 572823 | Decal – Grapple Model Number – ABG50B-2 |
| 7 | 1 | 572824 | Decal – Grapple Model Number – ABG70B-2 |
| 7 | 1 | 572825 | Decal – Grapple Model Number – ABG90B-2 |
| 7 | 1 | 572826 | Decal – Grapple Model Number – ABG140B-2 |

3.3 Decal Lifting and Lubrication Diagrams (continued)

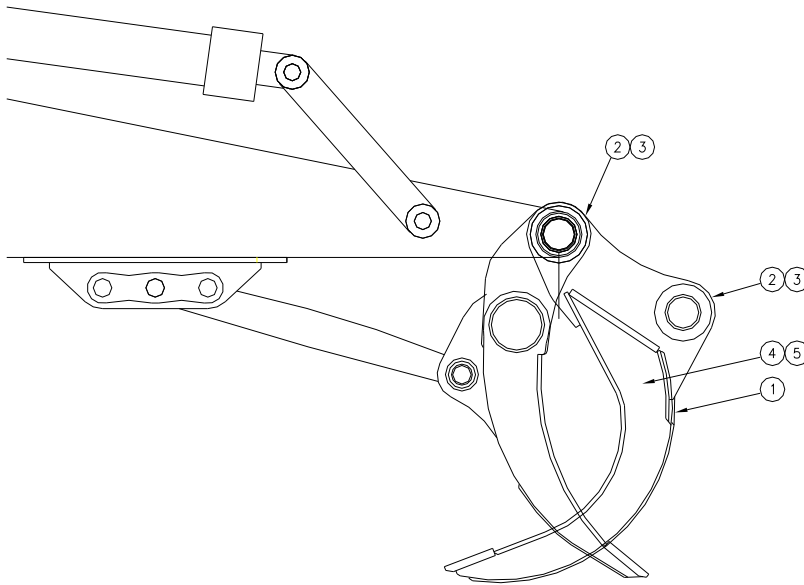


Figure 3.3.1: Decal Location Diagram

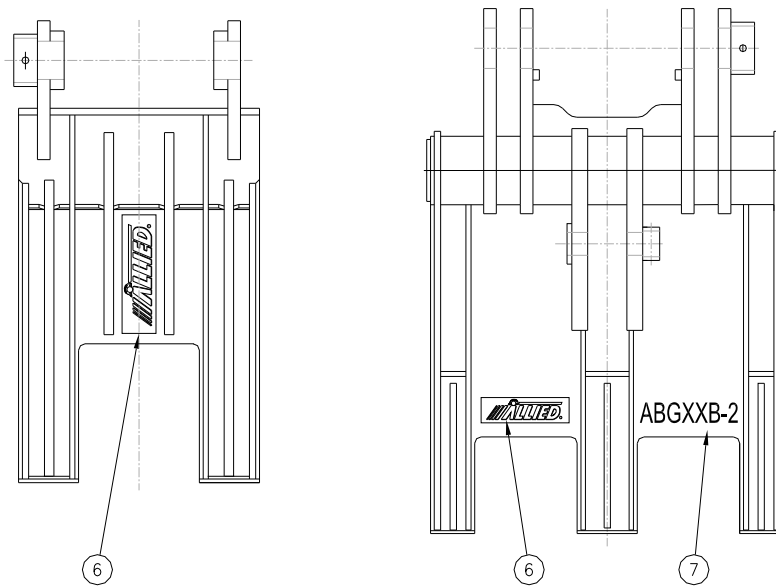


Figure 3.3.2: Decal Location Diagram

3.3 Decal Lifting and Lubrication Diagrams (continued)

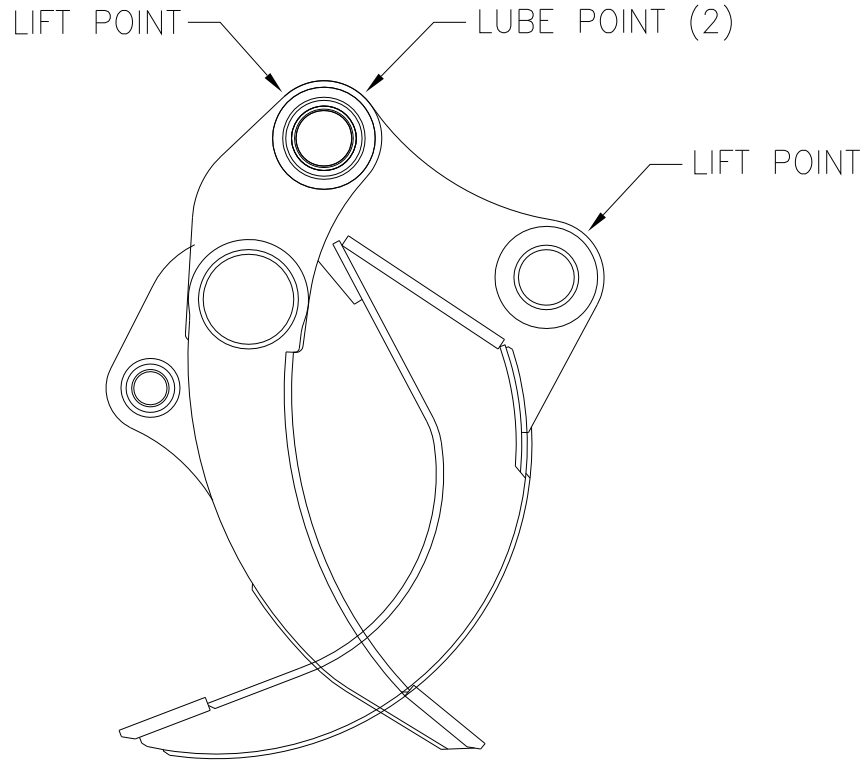


Figure 3.3.3 Lube Points and Lift Points

SECTION 4.0 GRAPPLE OPERATION SAFETY

4.1 Owner's Responsibilities

The equipment owner shall:

- Provide this technical manual to Allied Grapple operators.
- Train all operating personnel and enforce the procedures explained in this manual especially those regarding safety to personnel and equipment.
- Adapt these general instructions to specific applications.

4.2 General Construction Safety

Follow standard safety precautions expected and required of those working in construction including but not limited to locating existing underground service and utility lines establishing pedestrian barriers and using personnel protection equipment etc.

4.3 Federal State Local and OSHA Construction Guidelines and Regulations

Use the Allied Grapple in accordance with all federal state and local regulations regarding construction practices and public safety. Identification of and compliance to governing regulations are the responsibility of the owner and operator.

In the United States comply with the recommendations of the Occupational Safety and Health Administration standards of the U.S. Department of Labor. For OSHA construction guidelines contact your local federal government office or write:

U.S. Government Printing Office
Superintendent of Documents
P.O. Box 371954
Pittsburgh Pa. 15250

Ask for Construction Industry OSHA Standards Stock #869-034-00107-6.

4.4 General Safety Summary

The safe and effective use of any heavy construction equipment depends upon proper installation operation maintenance and repair. Operational safety must encompass all of these factors. This Section includes minimum safety policies the Allied Grapple owner shall establish for all Allied Grapple installations. The Allied Grapple owner must tailor the safety program to each specific site and application. Such a program will result in increased equipment life and performance and reduced downtime. Most importantly it will reduce the risk of equipment damage and personnel injuries.

4.4.1 CAUTIONS and WARNINGS

Throughout this manual detailed CAUTIONS and WARNINGS are included with instructions and procedures. Even experienced service technicians are to review these CAUTIONS and WARNINGS prior to performing a procedure. CAUTIONS and WARNINGS are highlighted by the symbol shown here and explained as follows:

!! WARNING !!

Instructions preceded by this symbol identify hazards to personnel. WARNING

instructions must be followed to ensure safe handling and operation. These instructions shall be followed at all times. Improper operation or servicing can result in personal injury. Read this manual thoroughly before operating or maintaining the Allied Grapple.

!! CAUTION !!

Instructions identified with this symbol are important to prevent damage to equipment and to maintain full service life of the Allied Grapple. Follow them carefully.

Operation or service not in accordance with these instructions may subject the Allied Grapple to conditions beyond its design capability. Read this manual thoroughly before operating or maintaining the Allied Grapple.

4.4.2 Personnel Precautions

Always wear safety glasses and protective clothing when operating or handling the Allied Grapple.

SECTION 5.0 MOUNTING INFORMATION

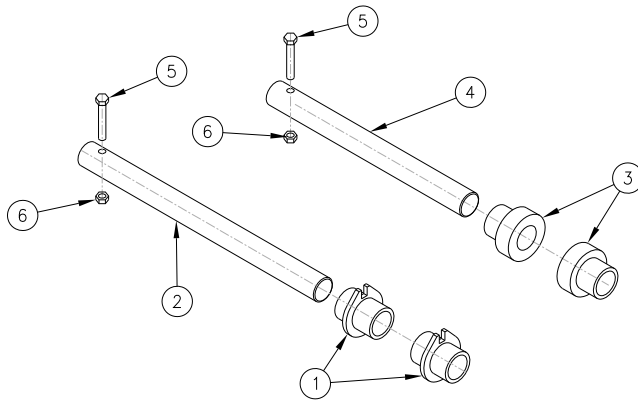
5.1 ABG30B through ABG90B Mounting Kits

The Allied ABG B-Series Grapple (except the ABG140B) uses a mounting kit to install it on the carrier. The kit includes pins that match the carrier pin sizes. The Sleeve Assemblies and Link Sleeves have specific flange lengths so that the Grapple will match the carrier's Stick Section width and mounting pin diameters. Some kits have a lube-through Link Pin if the carrier has a lube-through pin. The different mounting kits allow the grapple to be

interchangeable between carriers within its designed weight class. The mounting kit includes the parts shown in Figure 5.1.1.

5.2 ABG140B Mounting

The ABG140B grapple is designed to fit a specific carrier. The stick pin, link pin, and sleeve assembly are unique to a grapple-carrier combination. Contact Allied for specific information regarding your configuration.



| Item No. | Qty. | Description |
|----------|------|-----------------|
| 1 | 2 | Sleeve Assembly |
| 2 | 1 | Stick Pin |
| 3 | 1 | Link Pin |
| 4 | 2 | Link Sleeve |
| 5 | 2 | Bolt |
| 6 | 2 | Nut |

Figure 5.1.1 Mounting Kit Parts

SECTION 6.0 INSTALLATION & REMOVAL

6.1 Mounting Kit Installation

!! CAUTION !!

Mount only on carriers with adequate lift capacity. See Section 3.0

Prior to installation carefully inspect threaded fasteners boom pins and mounting hardware for damage. Repair or replace any damaged components. Measure the carrier stick width grapple lug width pin diameters and the mounting kit parts to insure that the correct parts are on hand.

!! WARNING !!

The Sleeve Assemblies also function as the grapple jaw pivot pins. Grapple Jaws are heavy and subject to movement during assembly. Severe injury can result when installing the Sleeve Assemblies if precautions are not followed.

!! WARNING !!

Always wear gloves and eye protection when installing mounting pins and hardware.

1. Using a crane and cribbing as necessary align the pin bores of the Upper and Lower Jaws.

!!WARNING !!

Keep hands and fingers clear of mounting pin holes carrier linkage and other pinch points while equipment is being positioned.

2. Center the jaws and measure the gaps between the lug faces.

3. Prepare shims to allow a final assembly overall gap of about 1/8" (3mm). Grease or tape can be used to stick the shims in position while driving in the Sleeve Assemblies.

4. Apply grease to the Sleeve Assembly outside diameters.

5. Insert the Sleeve Assembly from the inside face of the lug. Align the keyway on the Sleeve Assembly flange to the key on the inside face of the lug on the Lower Jaw.

6. Push the Sleeve Assembly in place making sure that the shims stay in position.

7. Repeat these steps for the opposite side.

8. Install the Link Sleeves in a similar manner.

6.2 Mounting Pad Installation and Welding

Position the carrier stick section so its back side is laying horizontal. Thoroughly clean the area where the mounting pad attaches of all oil grease loose rust paint and scale.

!! CAUTION !!

During installation instruct carrier operator to operate carrier controls only as instructed by Grapple installer.

Position the mounting pad on the Stick according to Figure 6.2.1. The mounting pad should be centered on the Stick from side to side. The mounting plate is symmetrical and can be installed in either direction.

Before welding insure that the holes in the Mount Pad are parallel to the Stick Pin. After final adjustments the mounting pad should be clamped and tack welded in place.

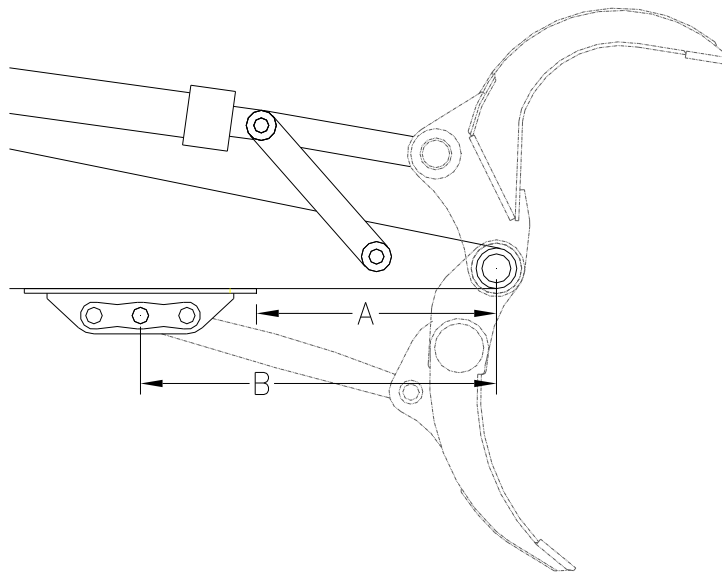


Figure 6.2.1 Mounting Pad Location

| Table 6.1 Mounting Pad Location | | | | | | | | | | | | |
|------------------------------------|-------|------|-------|------|-------|------|-------|------|-------|------|--------|------|
| | 30B-2 | | 40B-2 | | 50B-2 | | 70B-2 | | 90B-2 | | 140B-2 | |
| | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm |
| Dimension A | 33.2 | 843 | 37.4 | 949 | 41.5 | 1054 | 44.4 | 1127 | 52.5 | 1333 | 43.4 | 1102 |
| Dimension B | 49.3 | 1251 | 55.4 | 1408 | 61.6 | 1564 | 70.3 | 1785 | 82.0 | 2083 | 76 | 1930 |

6.2 Mounting Pad Installation and Welding (continued)

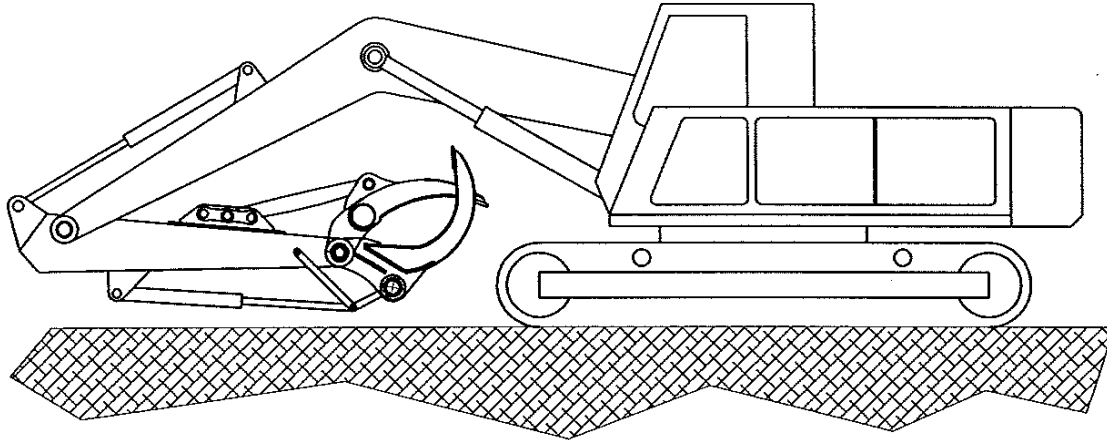


Figure 6.2.2 Carrier Positioned to Weld Mounting Pad

Briefly operate the Grapple without a payload to assure that the mounting pad location is correct before final welding.

!! WARNING !!

Keep all personnel clear of the Grapple since the Mounting Pad is not final welded and could break loose causing severe injury.

After the operation check perform final welding of the mounting pad as follows:

Heat the welding zone to remove moisture to 200-300 degrees Fahrenheit [93-149C].

Using AWS E -7018 low hydrogen rod for stick welding or AWS E-70T-1 for semi-automatic gas shielding arc weld a 1/2" [1.27 mm] fillet all around the mounting pad periodically alternating from side to side to control warping and cracking.

After installation and prior to use briefly operate the Grapple without a payload then

check for any signs of any binding or distortion.

6.3 Grapple Installation on Carrier

!WARNING !!

Keep hands and fingers clear of mounting pin holes carrier linkage and other pinch points while equipment is being positioned.

!! WARNING !!

Always wear gloves and eye protection when installing mounting pins and hardware.

1. With the grapple laying on the ground and leveled to the carrier the carrier operator should line up the carrier's stick pivot between the Grapple lugs.
2. Push the Stick Pin into the Sleeve Assemblies and the carrier holes. Use a hammer if necessary to tap the pin into final position.

3. Extend the tool cylinder until and position the tool link until the link pin holes are in line. Install the Lin Pin.
4. Install the Stiff Arm to the Grapple Lower Jaw. Install the keeper bolt and nut.

6.4 Removal of Grapple from Carrier

!WARNING !!

Keep hands and fingers clear of mounting pin holes carrier linkage and other pinch points while equipment is being positioned.

!! WARNING !!

Always wear gloves and eye protection when installing mounting pins and hardware.

1. Position Grapple safely on the ground.
2. Be sure unit is stable prior to removal.
3. Remove keeper bolts and nuts from the Stick Pin and Link Pin.
4. Remove keeper bolts and nuts from the Stiff Arm to Mounting Pad Pin.
5. Position the grapple to remove the load on the Stiff Arm.
6. Remove the Stiff Arm pins and remove Stiff Arm.

7. Position the tool cylinder to remove the load on the link pin. Drive out the link pin.
8. Position the stick section to remove the load on the Stick Pin. Drive out the Stick Pin.
9. Reinstall mounting hardware on the Grapple to avoid loss or damage.

6.5 Removal of Mounting Kit from Grapple

1. Remove the Grapple from the carrier per section 6.4.
2. Press out the Link Sleeves from the Upper Jaw.
3. Support the Jaws adequately.
4. Press out the Sleeve Assemblies.

!! WARNING !!

The Sleeve Assemblies also function as the grapple jaw pivot pins. Grapple Jaws are heavy and subject to movement during assembly. Severe injury can result when installing the Sleeve Assemblies if precautions are not followed.

!! WARNING !!

Always wear gloves and eye protection when installing mounting pins and hardware.

SECTION 7.0 OPERATION

The Allied ABG B-Series grapple is a tool that can safely be used in construction demolition and material handling. Think about safety at all times. The cautions and warnings in this manual are not an exhaustive list of all the ways to get injured killed or cause property damage. Follow all safety precautions in Section 4.0.

!! WARNING !!

Never operate the Grapple with anyone in close proximity to the machine.

!! WARNING !!

Be aware of your surroundings. Keep a safe clear distance to any utility lines.

!! WARNING !!

Make sure the carrier operator's cab has the front window installed. Some materials will fracture under the clamping force of the grapple jaws. Flying debris may hit the operator or other persons.

The Allied Grapple is designed to operate with the carrier over a wide range of applications. In order to maximize performance and to avoid equipment damage follow the precautions for Lubrication and Maintenance in Section 9.0.

Adjust the Stiff Arm position in the Mounting Pad if necessary to optimize

gripping power. The best position for the stiff arm depends on the size of the material being moved whether the material is all on the ground or being loaded on a truck etc.

The Allied Grapple is suited for many types of material handling:

Road Construction: Large concrete slabs can be loosened and raised from the roadbed while the positive grip action of the grapple eliminates the need for slinging.

Scrap Handling: More scrap can be moved efficiently than with other methods. Use the closed grapple jaws to pack down the loaded truck to optimize transport of materials.

Demolition: Residential commercial and industrial dismantling can be accomplished easily and efficiently. The grapple can also break up and compact debris.

Rock Handling: The grapple allows for easy handling and placement of large rocks.

Land Clearing: Grapples easily rip or tear tree stumps from the ground. They can also shake excess dirt off stumps to reduce load weight.

SECTION 8.0 TROUBLESHOOTING

Listed below are several operating problems and their recommended corrective action.

Mounting kit doesn't fit into grapple.

| | |
|---|---|
| Wrong mounting kit was ordered. | Measure carrier stick width and pin diameters and order correct kit. |
| Debris on pins and/or bushing ID's | Clean pins and bushings. |
| Damage galling and/or burrs on pin outside diameters. | Disassemble grapple and replace damaged parts. |
| Grapple lugs are distorted. | Record measurements take pictures; Contact Allied Construction Products |

Assembled Grapple doesn't fit the carrier.

| | |
|---------------------------------|--|
| Wrong mounting kit was ordered. | Measure carrier stick width and pin diameters and order correct kit. |
|---------------------------------|--|

Grapple doesn't close evenly and or completely. One side closes first.

| | |
|--|---|
| Grapple is distorted due to over-load. | Record measurements take pictures; Contact Allied Construction Products |
|--|---|

Grapple jaw or lugs appear to be twisted.

| | |
|--|---|
| Grapple is distorted due to over-load. | Record measurements take pictures; Contact Allied Construction Products |
|--|---|

Pivot bearings squeak when jaws operate.

| | |
|---|--|
| Pivot bearings not lubricated. | Lube pivot points with high pressure grease. |
| Pins sleeve assemblies link sleeves and/or bushings are galled. | Polish to remove damaged surfaces. Replace parts that are severely galled. |

Stiff Arm does not line up with Mounting Pad.

| | |
|--|---|
| Lower Jaw is distorted due to over-load. | Record measurements take pictures; Contact Allied Construction Products |
| Mounting pad installed on an angle | Remove Mounting Pad and Re-install. |

For conditions other than these contact the Allied Technical Service Department.

SECTION 9.0 SERVICE AND MAINTENANCE

9.1 General Guidelines

!! CAUTION !!

Severe damage to the grapple will result if the grapple is operated after a crack develops. A small crack is easy to repair but will grow into an expensive major failure if not taken care of right away.

!! WARNING !!

Follow all safety practices and wear appropriate protective equipment.

Use only genuine Allied replacement parts. Failure to use approved replacement parts may subject the Allied Grapple to premature failure. The use of unapproved replacement parts cause the warranty to be voided.

Do not make any alterations to the Allied Grapple without written authorization from the Allied Engineering Department.

!! WARNING !!

Some Grapple components are heavy. Use proper lifting and support equipment.

!! WARNING !!

Service the ABG B-Series Grapple in safe work areas. Never service the Grapple on the carrier.

Contact the Allied Technical Service Department with questions regarding maintenance operation or replacement parts.

9.2 Preventive Maintenance

After every 100 hours of operation the Allied Grapple should be cleaned and inspected.

Check all components for excessive wear. Check all hardware for tightness.

The frequency of maintenance depends upon the operating environments and conditions of operation.

9.3 Lubrication

The Allied Grapple is lubricated through a standard lubrication fittings located at the main pivot. Regular greasing is important to flush foreign material from the bushings. Under normal operating conditions lubricate the bearings every 4 hours of operation. During extreme operating conditions such as high temperatures and dusty conditions lubricate more frequently. Recommended grease:

Use a premium quality multipurpose extreme pressure petroleum based grease with lithium and anti-rust additives. Minimum oil viscosity shall be 14.5 cSt at 212° F (100° C).

Approved brands:

Shell Oil -Alvania EP2
Mobile Oil Co. - Mobilux EP2
Texaco Inc. -RB2.

1. Position Allied Grapple for easy access to lubrication fitting.

2. Carefully clean lubrication fitting prior to use.

3. Inject grease using with a standard manual grease gun until clean grease is observed flowing from the bushing.

9.4 Warranty Protection

Maintain written records of Allied Grapple maintenance service and repair. These records will be helpful if warranty coverage is ever in question. Each record shall include:

- The date of service maintenance or repair.
- A description of the service maintenance or repair performed. Include part numbers if applicable.
- Copies of purchase order(s) and invoice(s) for repair parts and service.
- The name and signature of the person performing the service maintenance or repair.

**SECTION 10.0
LIFTING TRANSPORT STORAGE**

10.1 Lifting & Transport

If the Allied Grapple is to be transported independent of the carrier:

- Remove all loose debris from the Allied Grapple.
- Follow removal instructions in Section 6.4.
- Lift Allied Grapple only with appropriate lifting equipment.
- Adequately stabilize and secure Grapple for transport.

If the Allied Grapple is transported while installed on the carrier:

- Remove all loose debris from Allied Grapple.
- Inspect the mounting pins and hardware for damage and integrity.
- Transport carrier in accordance with carrier manufacturer's recommendations.

10.2 Storage

Several simple precautions are necessary for storage of the Allied Grapple.

- Lubricate pins and bushings.
- Avoid wet or damp conditions to minimize rust.

SECTION 11.0 PARTS INFORMATION

NOTE: The following illustrations and parts lists are typical models of the Allied ABG B-Series Grapple. Specific assemblies and mounting configurations may vary.

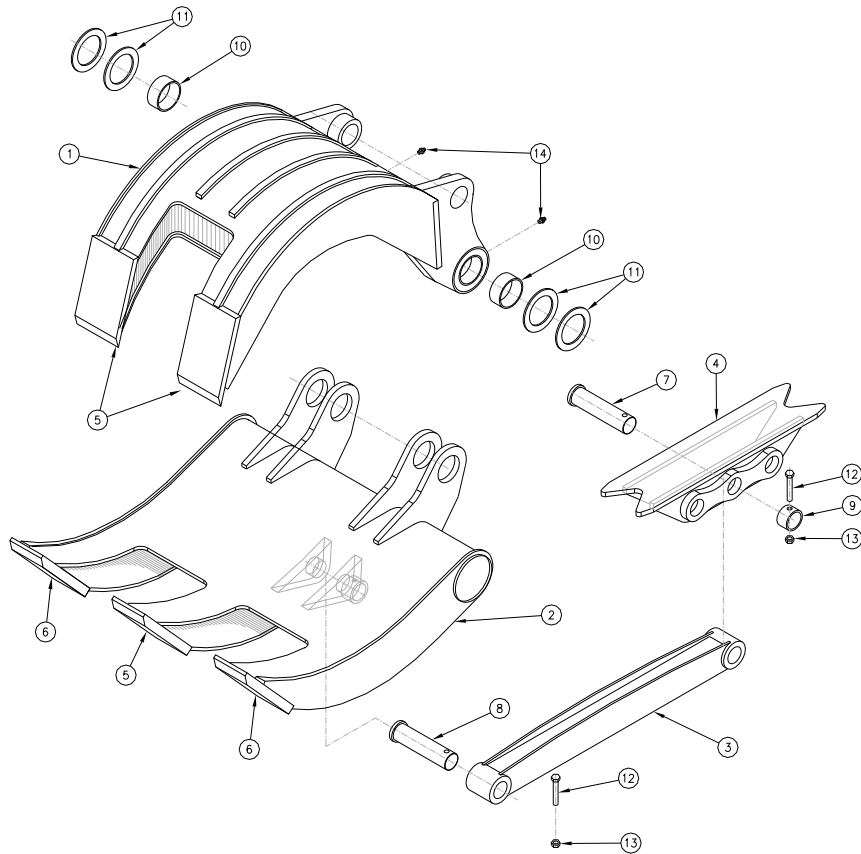


Figure 11.1.1: ABG 30 through 90 B-Series Grapple Parts Identification

Table 11.1.1
ABG 30 through 90 B-Series Grapple Parts Identification

| Item No. | Qty | Description | 30B-2 | 40B-2 | 50B-2 | 70B-2 | 90B-2 |
|----------|-----|------------------------------|-----------|-----------|-----------|-----------|-----------|
| | | | PN 572603 | PN 572605 | PN 572607 | PN 572609 | PN 572611 |
| 1 | 1 | Upper Jaw | 572613 | 572622 | 572776 | 572785 | 572794 |
| 2 | 1 | Lower Jaw | 572614 | 572768 | 572777 | 572786 | 572795 |
| 3 | 1 | Stiff Arm | 572615 | 572769 | 572778 | 572787 | 572796 |
| 4 | 1 | Mounting Pad | 572616 | 572770 | 572779 | 572788 | 572797 |
| 5 | 3 | Tine Tip - Wide | 572617 | 572771 | 572780 | 572789 | 572798 |
| 6 | 2 | Tine Tip - Narrow | 572618 | 572772 | 572781 | 572790 | 572799 |
| 7 | 1 | Pin - Stiff Arm to Mtg. Pad | 572619 | 572773 | 572782 | 572791 | 572800 |
| 8 | 1 | Pin - Stiff Arm to Lower Jaw | 572620 | 572774 | 572783 | 572792 | 572801 |
| 9 | 1 | Pin Collar - Mounting Pad | 573183 | 573184 | 573185 | 573186 | 573187 |
| 10 | 2 | Bushing - Main Pivot | 572621 | 572775 | 840585 | 572793 | 572802 |
| 11 | 4 | Shim | 840160 | 840160 | 840160 | 840160 | 840112 |
| 12 | 2 | Bolt | 659223 | 659392 | 659392 | 659392 | 902545 |
| 13 | 2 | Nut | 657736 | 620597 | 620597 | 620597 | 798063 |
| 14 | 2 | Lube Fitting | 798197 | 798197 | 798197 | 798197 | 798197 |

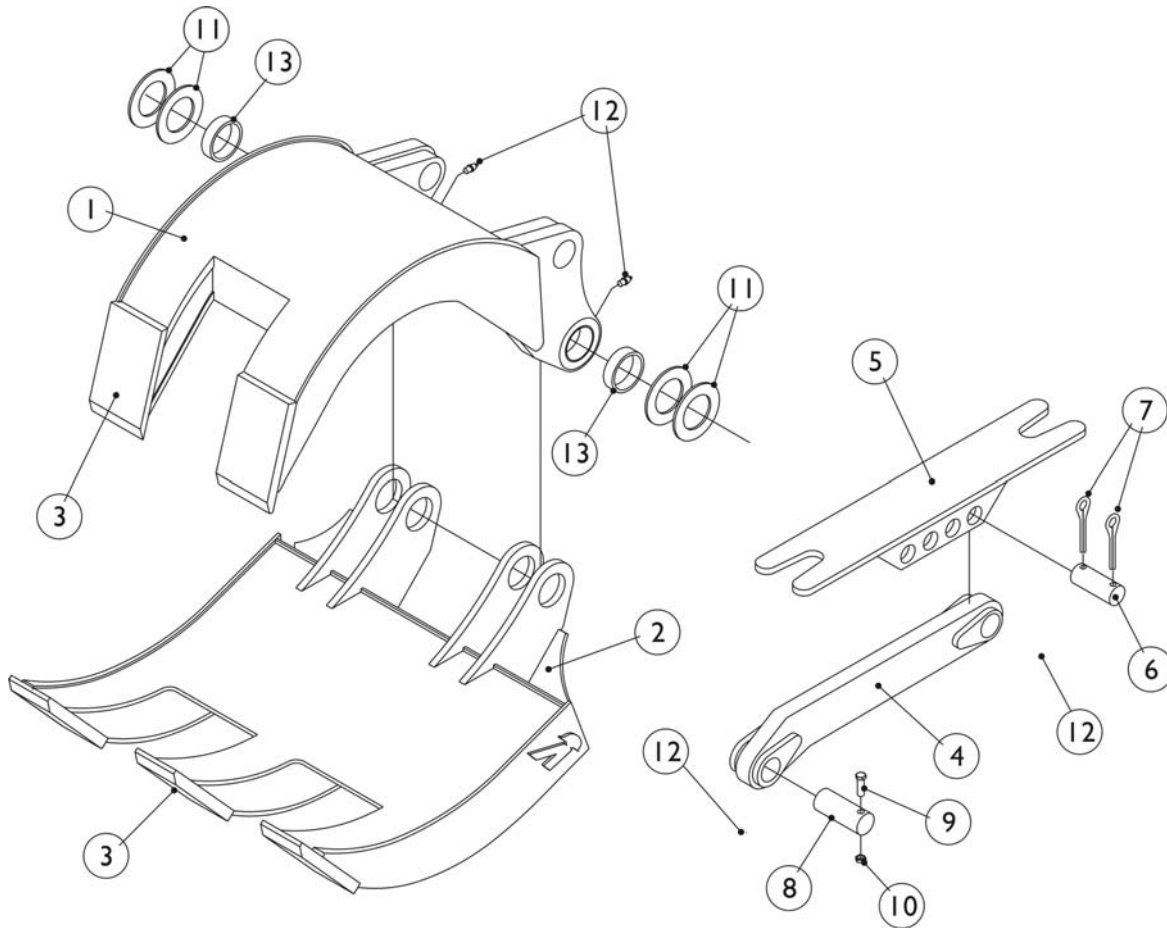


Figure 11.1.2: ABG 140 B-Series Grapple Parts Identification

| Table 11.1.2 ABG 140 B-Series Grapple Parts Identification | | | | | | | |
|---|-----|-----------------------------|----------|----------|-----|------------------------------|----------|
| Item No. | Qty | Description | Part No. | Item No. | Qty | Description | Part No. |
| 1 | 1 | Upper Jaw | *1 | 8 | 1 | Pin - Stiff Arm to Lower Jaw | 840642 |
| 2 | 1 | Lower Jaw | | 9 | 1 | Bolt | 563318 |
| 3 | 5 | Tine Tip | | 10 | 1 | Nut | 620605 |
| 4 | 1 | Stiff Arm | 840638 | 11 | 8 | Shim | 102361 |
| 5 | 1 | Mounting Pad | 840639 | 12 | 4 | Lube Fitting | 798197 |
| 6 | 1 | Pin - Stiff Arm to Mtg. Pad | 840643 | 13 | 2 | Bushing - Main Pivot | 840640 |
| 7 | 2 | Cotter Pin | 840644 | | | | |

*1 – Grapple configuration is carrier dependent. Contact Allied for specific part numbers.

DOCUMENT REVISIONS

| <u>Date</u> | <u>Page</u> | <u>Change</u> |
|--------------------|--------------------|-----------------------------------|
| October 22, 2007 | | Original Issue |
| February 23, 2009 | 5-8 | Revise dimensions and weights |
| April 1, 2009 | 5 | Revise weights |
| May 6, 2009 | 5-8, 18 | Revise dimensions & added ABG140B |



*3900 Kelley Avenue, Cleveland, Ohio 44114
Tel: 216-431-2600 Fax: 216-431-2601
e-mail: Sales@AlliedCP.com
website: <http://www.AlliedCP.com>*
