

## **INLINE TENSION DEVICE USER MANUAL**

**AMTKA519B-500 GROOVED WHEELS**  
(for wirelines from .187 to .499)

**AMTKA519B-550 GROOVED WHEELS**  
(for wirelines from .5 to .550)

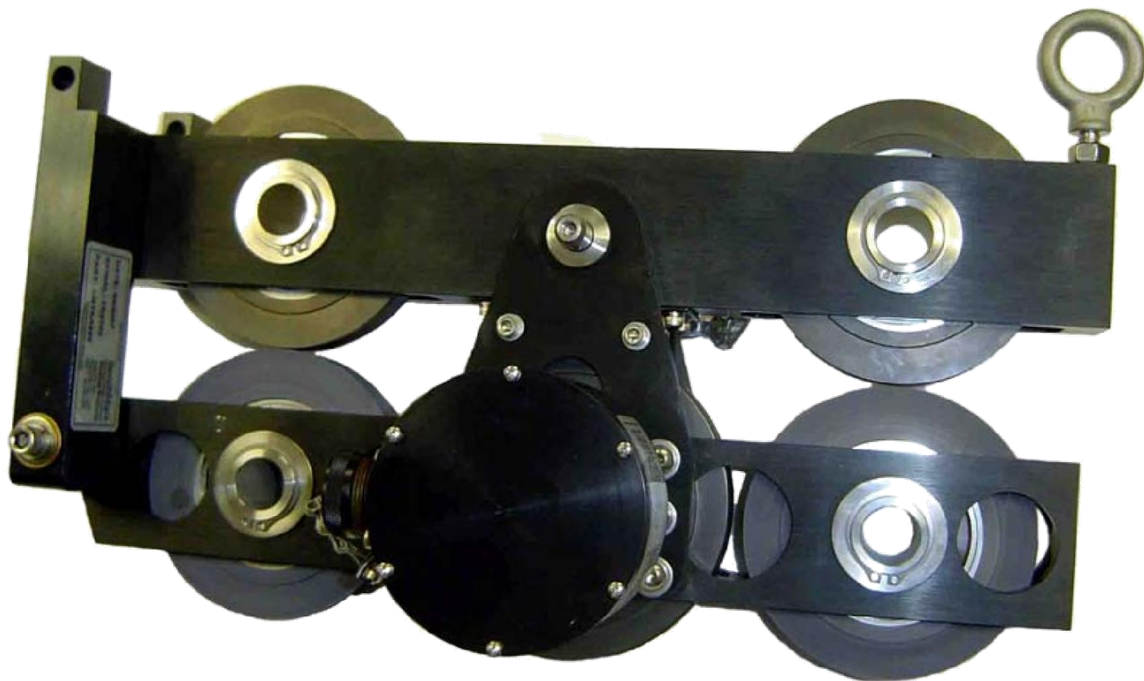


This device is designed to provide wireline tension data in place of a derrick mounted load cell. It is installed on the wireline next to the existing measuring head.

Tension is calculated by slightly bending the wireline over the tension wheel. The wheel axle is gauged to produce a voltage output.

## 1.0 FEATURES / BENEFITS

- Eliminates need for a load cell to be mounted above the top sheave. This makes it particularly useful on rigup's where a top sheave is not used.
- Two devices can be used in conjunction with a powered sheave system to provide dual tension readings, wireline tension at the well head tension and wireline tension going on to the drum.
- Increases job reliability by eliminating long cables going to the top sheave and rough treatment of load cells.
- Allows faster rigup than conventional systems. Eliminates need for cable spools, T-bar pins, shackles, etc.
- Bottom assembly hinges down for easy cable installation and removal.

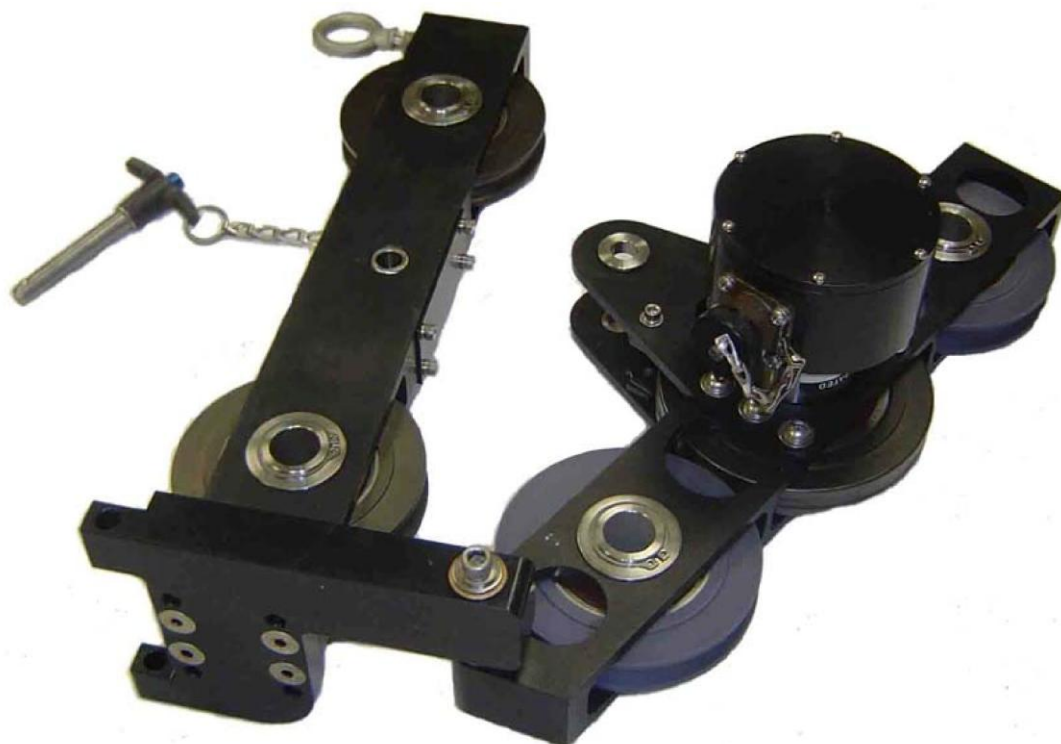


Height:	9"	229 mm
Width:	7"	178 mm
Weight:	21 lbs	9.5 kg
Length (frame):	16 3/4"	425 mm
(yoke):	20"	508 mm

## USER INSTRUCTIONS

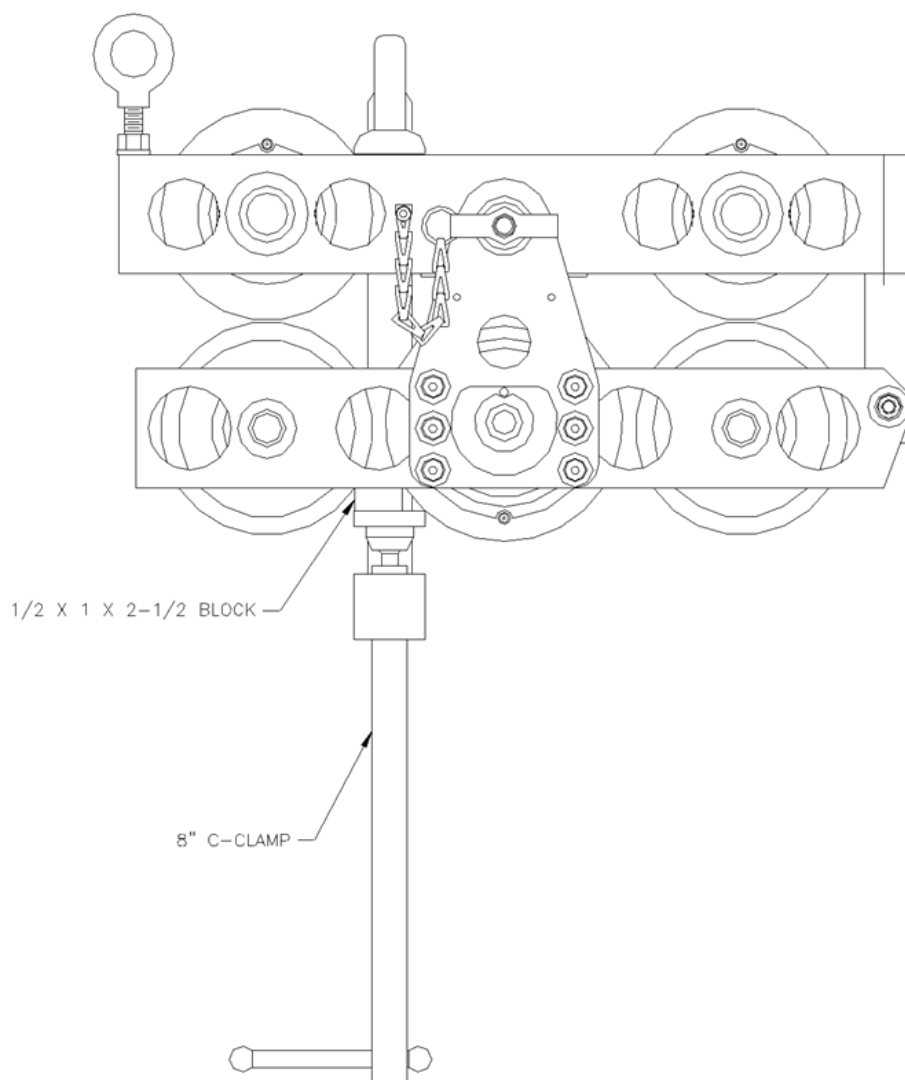
### 3.1 CABLE INSTALLATION / REMOVAL

- 3.1.1 To install cable, remove the push pin, and hinge the device open.
- 3.1.2 Lifting up on the wireline cable makes it easier to remove the push pin.  
The cable can now be inserted or removed.
- 3.1.3 Swing the device closed and reinsert the pin.



### 3.2 CABLE REMOVAL UNDER LOAD

3.2.1 If under tension, the load will need to be removed from the prior to removing the retaining pin. A "C-clamp" can be used to remove the load. Install a C-Clamp across the top and bottom frames as shown in the drawing below.



3.2.2 Tighten the C Clamp until the load is removed from the retaining pin. Remove the retaining pin then loosen and remove the C Clamp.

### **3.3 ELECTRONIC LOAD PIN REMOVAL**

The electronic load pin is held in place by one retaining ring on the outer end of its shaft. Remove the retaining ring. The load pin can then be removed from the mounting frame.

### **3.4 WHEEL AND BEARING REPLACEMENT**

The wheels and bearings can be replaced by removing the snap rings, then removing the shaft. The wheel assembly will then slide out and can be replaced with a new one.

### **3.5 SYSTEM OPERATION**

3.5.1 Install line in measuring head.

3.5.2 Make sure line is laying slack and head is free to move. Set the tension display to zero at this time.

3.5.3 Determine cable size used.

3.5.4 Calibrate the acquisition system to the tension device.

Since the wireline cable actually bends around the tension wheel, the bend radius of the wireline cable will affect the tension measurement.

3.5.5 At this point, the system is ready to log.

3.5.6 Operators must remain alert for visual indications of mechanical failures such as excessive vibration, wheel and roller slippage or lockups that signify bearing and shaft failures, and cable tracking problems. If damaged or worn parts are detected or suspected, the unit should be immediately repaired.

## **4.0 MAINTENANCE AND REPAIR**

### **4.1 PRE-JOB CHECK**

Each time the system is used perform the following steps:

Verify that the device is properly and securely attached to the spooling arm.

Make sure that all the wheels rotate easily and that the bearings are tight (no side to side slop).

### **4.2 POST-JOB MAINTENANCE**

At the completion of each job, thoroughly clean and dry the device as soon as possible. This avoids problems caused from borehole residues transferred from the wireline onto the measuring device. Borehole residues should be washed from the device with a cleaning solvent such as Varsol or an equivalent type. Rinse the device with water, dry, and wipe down with an oily rag.

**Do not pressure wash**

### **4.3 MONTHLY MAINTENANCE**

Visually inspect the interiors of the electrical connectors for the encoders and electronic load axle for dirt and evidence of insulation breakdown. Clean or replace as necessary. Install dust caps on the connectors if the cables are removed.

Inspect the tension wheel for signs of abnormal wear, diameter changes, or shaft and bearing play that could affect measurement accuracy. It should be replaced if it is grooved more than .030". The flat tension wheel should be 5" (127 mm) in diameter. The grooved tension wheel (severe load) should be 4.375" in diameter (bottom of groove).

Inspect the two grooved guide wheels on either side of the tension wheel. They should be 4" (101.6 mm) in diameter (bottom of groove).

Grease all the wheels and bearings that are fitted with a grease fitting (see following diagram). Use a water proof, marine grade grease. An inverted grease nozzle (Kerr p/n AM5KP130) is supplied with each head. This nozzle will fit any standard grease gun.



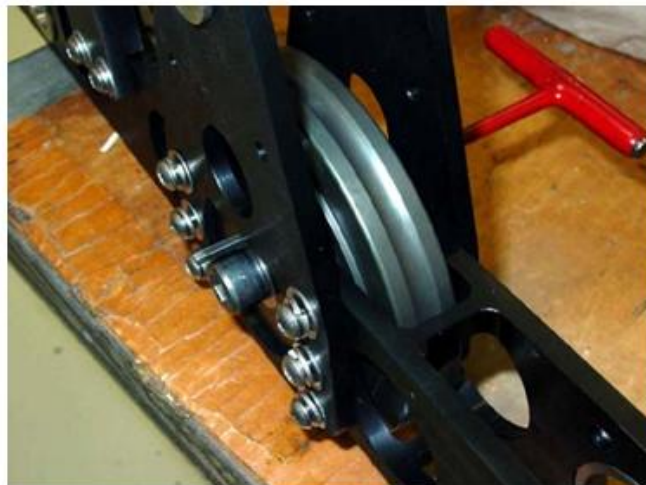


#### 4.4 INSTALLING THE LOAD AXLE WHEEL

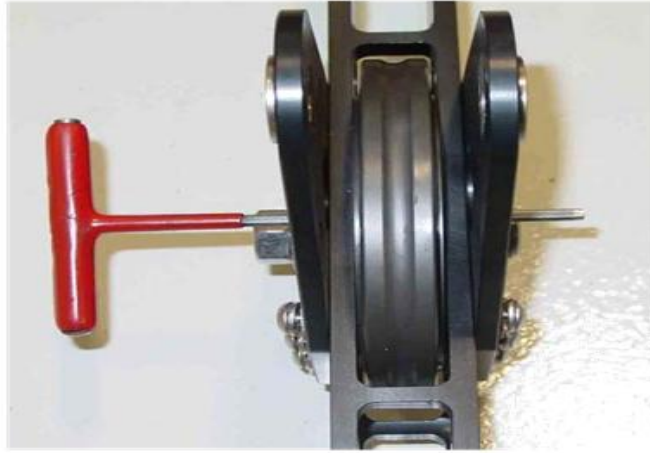
1. Insert the tension wheel into the frame. Make sure the slotted hole in the tension wheel bushing is on the same side as the roll pin hole in the frame.



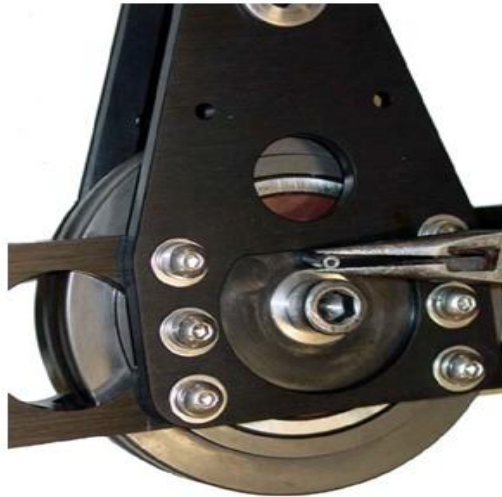
2. Use a bolt in place of the load pin to hold it in place. Install an allen wrench or other long tool to align the hole in the bearing with the slotted hole in the frame.







3. Insert a 3/16" x 1/2" long roll pin into the hole. Do not use a longer roll pin as it will put the wheel into a bind.



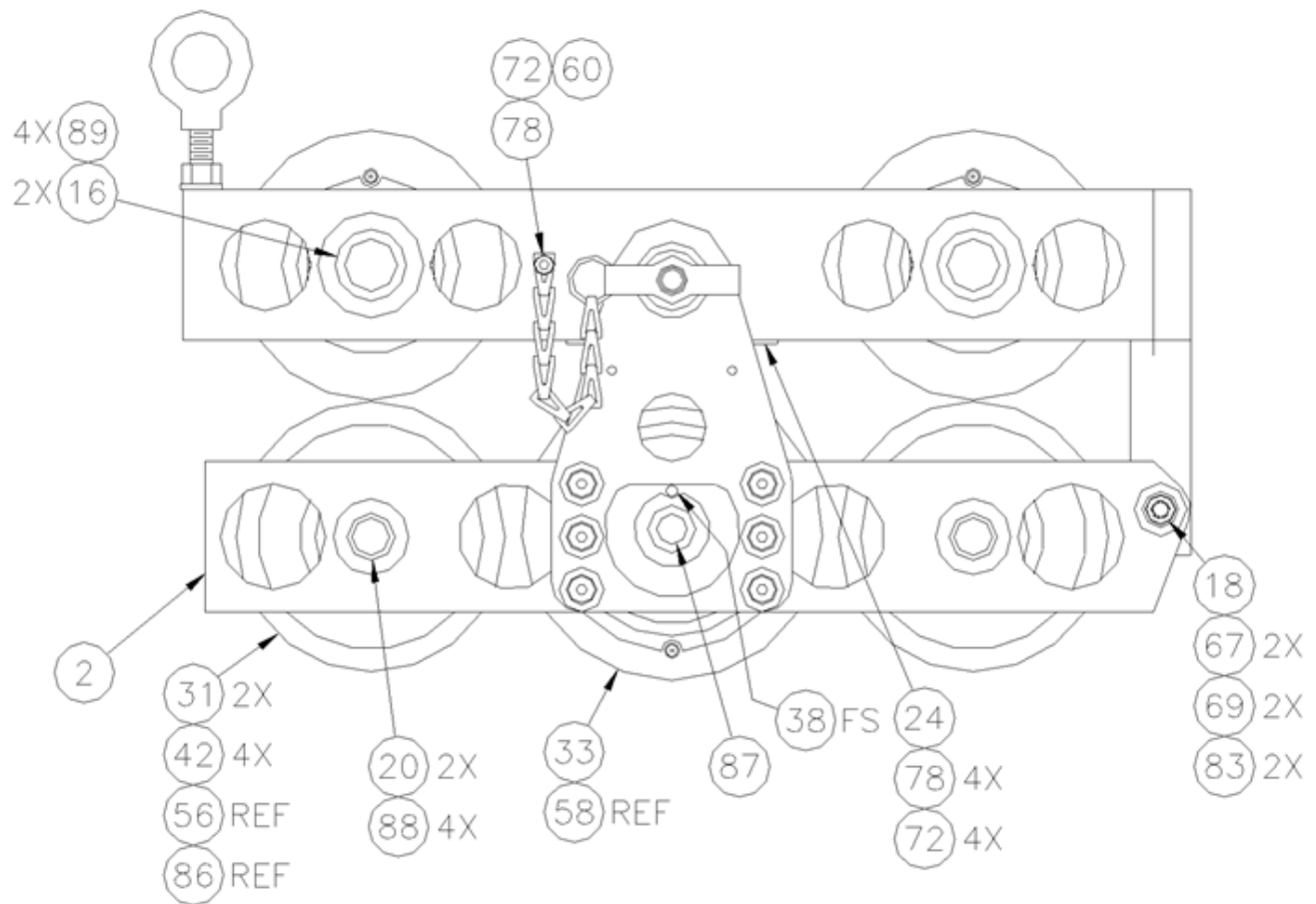
freely slide up and down.



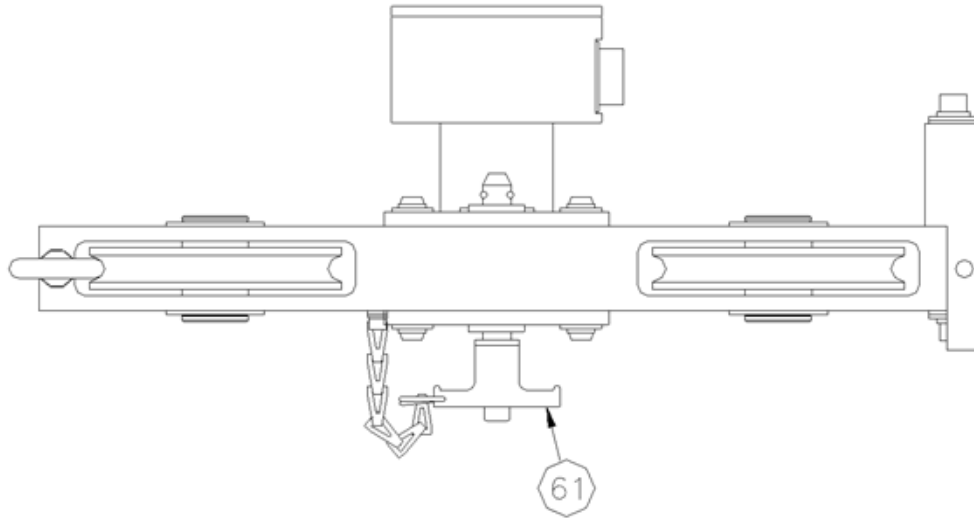
5. Remove the bolt and install the load pin.

## 5.0 DRAWINGS AND PARTS LISTS

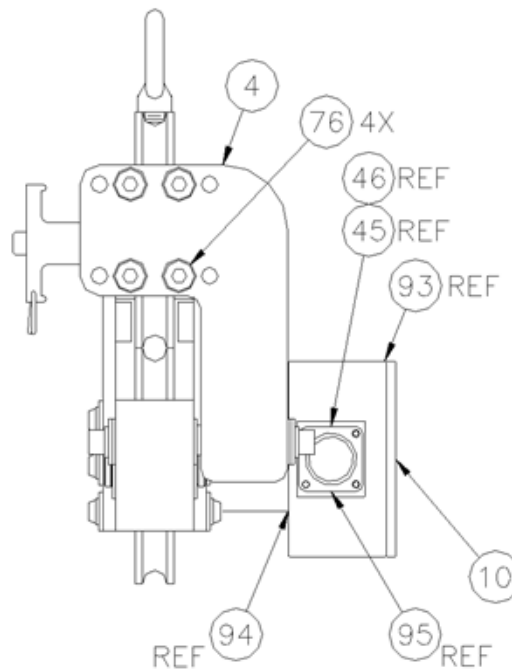
### 5.1 SIDE VIEW



## 5.2 TOP VIEW



## 5.3 FRONT VIEW



## 5.4 PARTS LIST

P/N	DESCRIPTION	QTY	ITEM	REFERENCE
AMTKA031	ASSY FRAME BACKBONE TOP ITD	1	1	
AMTKA132	ASSY FRAME BACKBONE BTM ITD G2	1	2	
AM3KA125	MOUNT ASSY PIVOT W/TIEDOWN 3K	1	4	6 PIN CONNECTOR
AM5KP226	PIN LOAD 3000# 1/2 OD 2.0 MV/V	1	10	
AM5KM011	SHAFT TENSION ROLLER 30MM SST	4	16	
AM5KM023	SHAFT PIVOT HORIZONTAL 1/2 SST	1	18	
AM5KM034	PLATE WEAR 1/16 X 1.5 X 3.5	1	24	
AM3KM134	BLOCK WEAR 0.75 X 2.50 TOOLSTL	2	26	
AM5KA063	ASSY WHEEL TENSN 5" LOAD AXL	0	33	WIRELINES < .47
AM5KA073	ASSY WHEEL TENSN GRV LOAD AXLE	1	33	WIRELINES < .50
AM5KA164	ASSY WHEEL TENSN FIXD 35MM BRG	4	34	WIRELINES < .50
AM5KA095	ASSY WHEEL TENS 0.550 LOAD AXL	1	33	WIRELINES .50 -.55
AM5KA091	ASSY WHEEL TENSN FIXD 35MM BRG	4	34	WIRELINES .50 -.55
AM5KP125	PIN COILED SPRING 3/16 X 1/2	1	38	
AM5KM084	SCREW ANTI-ROTATION TENS WHEEL	4	41	
AM5KM157	BEARING BALL 35MM ID MOD	0	54	
AM5KM134	BEARING BALL 40MM ID MOD	0	58	
AM5KP075	CHAIN SASH #35 SST	6	60	
AMS1P009	PIN QUICK REL 1/2 OD X 2-1/2	1	61	
AM5KP144	WASHER 1/4 LOCK SS HIGH COLLAR	4	62	
AMS1P058	WASHER 3/8 LOCK SS	1	63	
C276P039	WASHER 5/16 FLAT SST	2	67	
AMS1P047	WASHER 5/16 LOCK SS	2	69	
AMS1P059	NUT 3/8-16 SST	1	71	
C276P035	WASHER #10 LOCK SS	9	72	
AMS1P054	WASHER #10 FLAT SS	4	73	
AMTKP025	BOLT EYE 3/8-16 SHORT SHANK	1	75	
AM5KP038	SCREW 5/16-18 X 7/8 FH SOC SS	4	76	
AM5KP040	SCREW 10-24 X 3/8 SOC HD SST	5	78	
AMS1P052	SCREW 10-24 X 5/8 SOC HD SST	4	81	