



# BESTEK INDUSTRIES

MAINTENANCE PLATFORM MODEL

B-4

T.O 35A4-2-5-4

54J6345 TECHNICAL MANUAL. FOR ASSISTANCE OR REPAIR PARTS PLEASE CALL 210-434-1071 OR [EMAIL](#)

[BESTKSA.COM](http://BESTKSA.COM)

TECHNICAL MANUAL

OPERATION, SERVICE AND REPAIR INSTRUCTIONS

PLATFORM, ADJUSTABLE AIRCRAFT MAINTENANCE  
USAF

TYPE B-4A

AF 41(608)-34477  
F09603-99-D-0382

DISCLOSURE NOTICE - This information is furnished upon the condition that it will not be released to another nation without the specific authority of the Department of the Air Force of the United States, that it will be used for military purposes only, that individual or corporate rights originating in the information, whether patented or not, will be respected, that the recipient will report promptly to the United States, any known or suspected compromise, and that the information will be provided substantially the same degree of security afforded it by the Department of Defense of the United States. Also, regardless of any other markings on the document, it will not be downgraded or declassified without written approval of the originating United States agency.

DISTRIBUTION STATEMENT - Distribution authorized to U.S. Government Agencies and their contractors (Administrative or Operational Use) (1 September 2002). Other requests for this document shall be referred to WR-ALC/LKC, Robins AFB, GA 31098. Questions concerning technical content shall be referred to WR-ALC/LES.

WARNING - This document contains technical data whose export is restricted by the Arms Export Control Act (Title 22, U.S.C., Sec 2751, et seq) or the Export Administration Act of 1979, as amended, Title 50, U.S.C., App. 2401 et seq. Violations of these export laws are subject to severe criminal penalties. Disseminate in accordance with provisions of DoD Directive 5230.25.

HANDLING AND DESTRUCTION NOTICE - Comply with distribution statement and destroy by any method that will prevent disclosure of contents or reconstruction of the document.

---

Published Under Authority of the Secretary of the Air Force

---

1 SEPTEMBER 2002

CHANGE 1 - 10 SEPTEMBER 2003

**LIST OF EFFECTIVE PAGES**

INSERT LATEST CHANGED PAGES. DESTROY SUPERSEDED PAGES.

NOTE: The portion of the text affected by the changes is indicated by a vertical line in the margins of the page. Changes to illustrations are indicated by miniature pointing hands. Changes to wiring diagrams are indicated by miniature pointing hands or by shaded areas. A vertical line running the length of a figure in the outer margin of the page indicates that the figure is being added.

Dates of issue for original and changed pages are:

Original                      0                      1 September 2002                      Change                      1                      10 September 2003

TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 36, CONSISTING OF THE FOLLOWING:

Page No	*Change No
Title .....	1
A.....	1
i-iii .....	0
iv Blank .....	0
v-vi .....	0
I-1 .....	1
1-2 .....	0
2-1 - 2-4 .....	0
3-1 - 3-6 .....	0
3-7 Blank .....	0
3-8 - 3-21 .....	0
3-22 Blank .....	0

\*Zero in this column indicates an original page

## TABLE OF CONTENTS

Chapter	Page	Chapter	Page
LIST OF ILLUSTRATIONS.....	i	2.7.2	Installation..... 2-4
LIST OF TABLES.....	ii	3	REPAIR INSTRUCTIONS ..... 3-1
FOREWORD.....	iii	3.1	Disassembly ..... 3-1
SAFETY SUMMARY.....	v	3.2	Reassembly ..... 3-1
1 INTRODUCTION .....	1-1	3.3	Cleaning ..... 3-1
1.1 Purpose.....	1-1	3.4	Inspection..... 3-1
1.2 Leading Particulars .....	1-1	3.4.1	Visual Inspection of Pump and Ram..... 3-1
2 OPERATION AND SERVICE INSTRUCTIONS ...	2-1	3.5	Repair and Replacement ..... 3-3
2.1 Preparation for Use .....	2-1	3.5.1	Repair ..... 3-3
2.1.1 Platform.....	2-1	3.5.1.17	Pump Test ..... 3-12
2.1.2 Hydraulic Ram .....	2-1	3.5.2	Optional Repair of Handrails ..... 3-12
2.2 Operation.....	2-1	3.5.3	Optional Repair of Floor Supports..... 3-12
2.2.1 To Raise the Platform .....	2-1	3.6	Lubrication ..... 3-12
2.2.2 To Lower the Platform .....	2-2	3.7	Reassembly ..... 3-12
2.3 Lubrication.....	2-2	3.7.1	Hydraulic Hose ..... 3-12
2.4 Inspection.....	2-2	3.7.2	Hydraulic Ram ..... 3-12
2.5 Trouble Shooting.....	2-2	3.7.3	Scissor Assembly..... 3-12
2.5.1 Platform Operation Spongy .....	2-2	3.8	Operational Test..... 3-12
2.6 Ram and Reservoir Draining and Flushing.....	2-3	3.9	Special Tools..... 3-12
2.7 Remove and Replace Hydraulic Ram .....	2-3	3.10	Optional Repair of Lock Pins..... 3-13
2.7.1 Removal .....	2-3	3.11	Optional Repair of Lock Pin Chain..... 3-13
		3.12	Optional Repair of Towbar Catch Assembly Spring..... 3-15
		3.13	Replacing Damaged Bumper Pad ..... 3-15

## LIST OF ILLUSTRATIONS

Number	Title	Page	Number	Title	Page
1-1	Platform, Adjustable Aircraft Maintenance, USAF Type B-4A .....	1-2	3-5	Ram, Hydraulic .....	3-11
3-1	Platform, Adjustable Aircraft Maintenance, USAF Type B-4A .....	3-5	3-6	Stand Assembly, part No. 7947145.....	3-14
3-2	Scissors Assembly.....	3-6	3-7	Puller Assembly, part No. 7947381-10.....	3-17
3-3	Hydraulic Assembly (Sheet 1 of 2).....	3-8	3-8	Scissor Support Bracket part No. 8140552-10....	3-18
3-3	Hydraulic Assembly (Sheet 2).....	3-9	3-9	Installation of Platform Height Stop Bolt .....	3-19
3-4	Pump, Power Packer and Special Tools.....	3-10	3-10	Towbar Catch Assembly .....	3-20
			3-11	Damaged Bumper Pad Section Replacement.....	3-21

## LIST OF TABLES

<b>Number</b>	<b>Title</b>	<b>Page</b>	<b>Number</b>	<b>Title</b>	<b>Page</b>
1-1	Leading Particulars .....	1-1	3-1	Inspection of Parts.....	3-2
2-1	Trouble Shooting Data .....	2-2			

**FOREWORD**

**1 SCOPE.**

This handbook contains complete operation, service and repair instructions for the Platform, Adjustable Aircraft Maintenance, USAF type B-4A, manufactured by the United Steel and Wire Company, Battle Creek, Michigan, and Dynamic Manufacturers, Inc., Birmingham, Michigan. (Figure 1-1).

MIL-I-23398 Military Specification Lubricant; solid Film, Air Cured, Corrosion Inhibiting.

MIL-PRF-2104 Lubricating Oil, Internal Combustion Engine, Combat/Tactical Service.

MIL-PRF-5606 Hydraulic Fluid, Petroleum Base; Aircraft Missile and Ordinance.

**2 RECOMMENDATIONS FOR CHANGE.**

Recommendations concerning changes to this manual shall be submitted in accordance with TO 00-5-1.

MIL-PRF-6083 Hydraulic Fluid, Petroleum Base for Preservation and Operation.

MIL-PRF-83282 Military Specification Hydraulic Fluid, Fire Resistant, synthetic Hydrocarbon Base, Metric.

**3 ABBREVIATIONS AND ACRONYMS.**

AGE	Aerospace Ground Equipment
FOD	Foreign Object Damage
ID	Inside Diameter
OD	Outside Diameter
PSI	Pounds per Square Inch
UNF	Unified National Fine Thread

32-1-2 Use of Hand Tools (IBM).

35A4-2-5-4 IPB - Platform, Aircraft Maintenance Type B-4A.

**4 LIST OF RELATED PUBLICATIONS.**

AFOSH STD 91-2 Vehicle Mounted Elevating and Rotating Work Platforms, Manually Propelled and Self-Propelled Mobile Work Platforms and Scaffolds (Towers).

35-1-246WC-1 Periodic Inspection Workcards, Non-Powered Aerospace Ground Equipment Aircraft Servicing Equipment and Airfield Specialized Trucks and Trailers.

35-1-3 Corrosion Prevention, Painting and Marking of USAF Support Equipment (SE).

MIL-A-46146 Adhesives-Sealants, Silicone, RTV, Non-Corrosive (For use with sensitive metals and equipment).

## SAFETY SUMMARY

### 1 GENERAL SAFETY INSTRUCTIONS.

This manual describes physical and chemical processes which may cause injury or death to personnel, or damage to equipment if not properly followed. This safety summary includes general safety precautions and instructions that must be understood and applied during operation and maintenance to ensure personnel safety and protection of equipment.

### 2 WARNINGS, CAUTIONS AND NOTES.

WARNINGS and CAUTIONS are used in this manual to highlight operating or maintenance procedures, practices, conditions, or statements which are considered essential to protection of personnel (WARNING) or equipment (CAUTION).

#### WARNING

Highlights an essential operating or maintenance procedure, practice, condition, statement, etc., which if not strictly observed, could result in injury to, or death of, personnel or long term health hazards.

#### CAUTION

Highlights an essential operating or maintenance procedure, practice, condition, statement, etc., which if not strictly observed, could result in damage to, or destruction of, equipment or loss of mission effectiveness.

#### NOTE

Highlights an essential operating or maintenance procedure, condition, or statement.

### 3 SAFETY PRECAUTIONS.

The following safety precautions shall be observed while performing procedures in this manual.

- well ventilated area and avoid breathing vapors. Neoprene gloves and safety goggles/faceshield shall be worn. Keep away from sparks and flames.
- Do not place arms through scissors assembly.
- Perform all solvent cleaning operations in an approved cleaning cabinet or in a well ventilated area. Avoid prolonged breathing of the vapors. Avoid eye and repeated skin contact. Keep solvents away from sparks and flames.
- Welding operations produce heat, highly toxic fumes, injurious radiation, metal slag and airborne particles. Welding goggles, the proper tinted lenses, apron or jacket and welder's boots are required.
- Conduct all painting operations only in an approved spray booth equipped with adequate ventilation and exhaust.
- The use of eye protection while drilling, grinding, rotary filing and sanding with pneumatic tools is required. Failure to comply with this requirement could result in serious personal injury.
- The platform is equipped with two safety lock pins which must be engaged when the platform has attained the desired height. Do not operate the pump handle or release valve while standing on the ladder. Do not stand on ladder without safety pins engaged.
- The platform rate of descent shall be controlled by the operator to prevent damage to the stand and/or personal injury.
- Do not use stowed tow bar or lunette (in upright position) as a handle to position stand.
- If binding occurs while platform is being lowered, insert safety locks before performing any maintenance. Do not place arms through scissors area.
- The hydraulic system is filled with Hydraulic Equipment Preservative Oil for shipment. Drain and refill with Petroleum Base Aircraft Hydraulic Oil prior to use.
- Hydraulic fluids often contain additives which may affect skin, eyes and respiratory tract. These additives can be readily absorbed through the skin. Make sure fluid does not remain on skin. Use in

## TO 35A4-2-5-1

- Before towing maintenance platform, make sure that the rear casters are locked in the towing position by inserting the swivel lock pins. Raise platform a few inches to clear first or second platform safety pin hole and install safety pin to hold in raised position when towing stand through snow or uneven rough terrain. This will protect inner ladder from dragging and prevent damage to ladder.
- Be sure to have a firm grip on ram when bolt is removed. Collar assembly and ram weigh approximately 20 pounds.
- When assembling the ram assembly, make sure that the ram assembly is properly assembled and prevent damaging or marking the plunger during assembly procedures.



## CHAPTER 1 INTRODUCTION

### 1.1 PURPOSE

The Aircraft Maintenance Platform is a hydraulically operated adjustable platform and ladder assembly mounted on a caster-equipped base which enables personnel to work in safety at heights varying from a minimum of three feet to a maximum of seven feet.

### 1.2 LEADING PARTICULARS. (Refer to Table 1-1).

**Table 1-1. Leading Particulars**

Characteristic	Value
Base Length	92.2 ins.
Base Width	52.3 ins.
Platform Length	77.6 ins.
Platform Width	36.0 ins.
Maximum Height, lowered	3 ft.
Maximum Height, raised	7 ft.
Maximum Platform Load	500 lbs.
Weight	550 lbs.

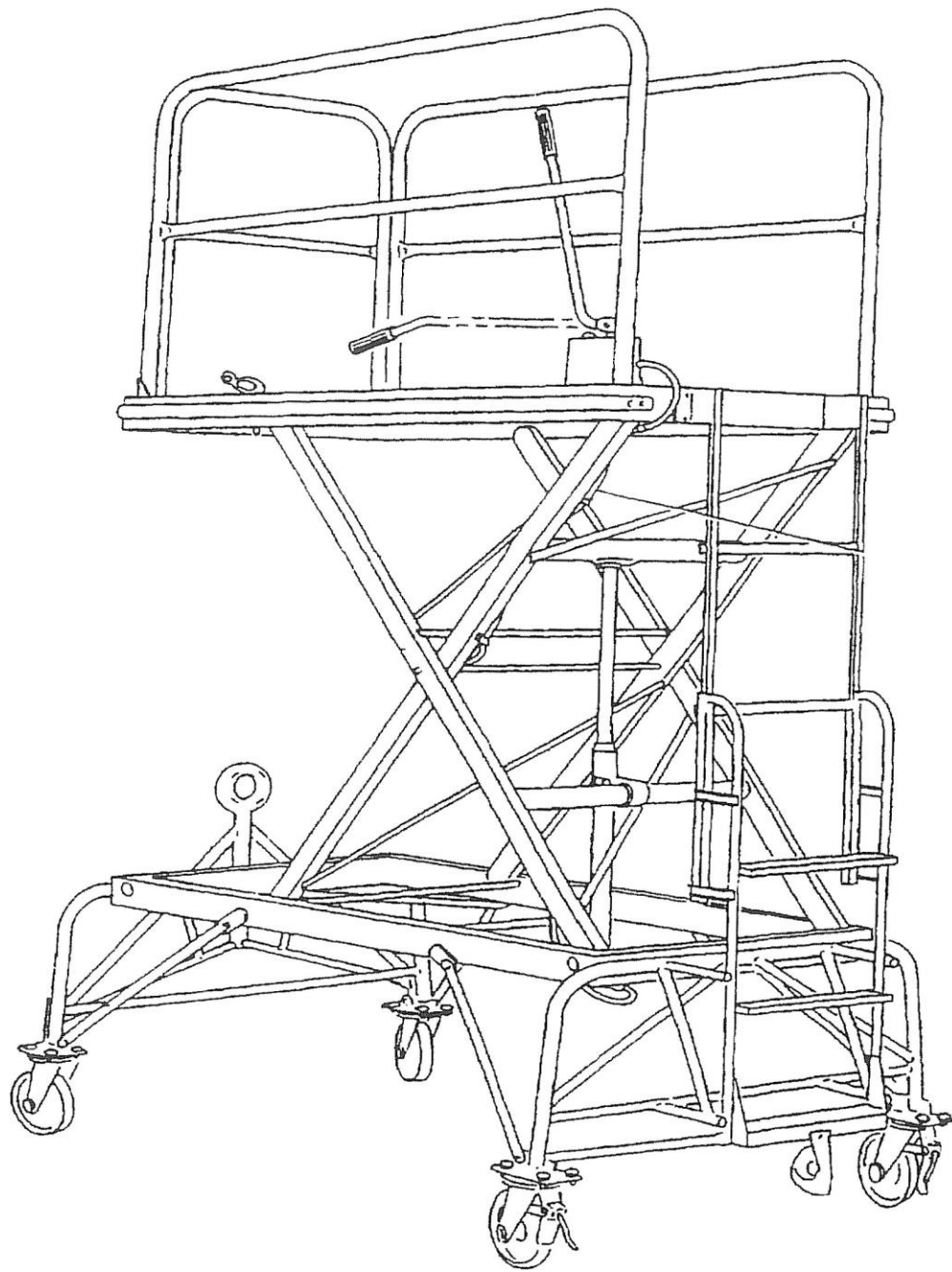


Figure 1-1. Platform, Adjustable Aircraft Maintenance, USAF Type B-4A

## CHAPTER 2

### OPERATION AND SERVICE INSTRUCTIONS

#### 2.1 PREPARATION FOR USE.

##### NOTE

When unpacking provide for 77 inches minimum head room for assembled equipment.

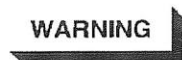
2.1.1 Platform. The platform is packed in one wooden crate 83-1/4 inches long by 43-1/4 inches wide by 27 inches high, together with component parts. Guard rails, ladders, end rails, braces, and casters are nested on the platform and must be assembled after shipment. For proper assembly of the platform, see Figure 1-1.



The hydraulic system is filled with Hydraulic Equipment Preservative Oil, Specification MIL-PRF-6083, for shipment. Drain and refill with Petroleum Base Aircraft Hydraulic Oil, Specification MIL-PRF-5606/MIL-PRF-83282 prior to use. Fill reservoir to within 1/2 inch to top.

2.1.2 Hydraulic Ram. The hydraulic ram (Figure 3-1, 8) is not connected to inside scissor (17) when packed. To attach ram, mechanically lift the platform and swing the ram into position. Secure with attaching parts.

#### 2.2 OPERATION.



Do not use stowed tow bar or lunette (in upright position) as a handle to position stand.

##### NOTE

- Maintenance stands are not normally equipped with receptacles for static grounding. If the stand is to be used where grounding is required, mount receptacle part No. MS90298 in a suitable location on base of frame.

- Comply with Safety Requirement AFOSH Standard 91-2 on Occupational Safety.

#### 2.2.1 To Raise the Platform.

- a. Immobilize the platform prior to use by inserting the swivel lock pins and locking the caster brakes. To prevent interference between the swivel lock and brake handle, the swivel will be locked with the brake handle 90 or 180 degrees from the swivel locking pin. When setting the brakes, pull the handle up with sufficient force to make sure the brakes will remain in the locked position and lock wheel brakes.

##### WARNING

The platform is equipped with two safety lock pins which must be engaged when the platform has attained the desired height. Do not operate the pump handle or release valve while standing on the ladder. Do not stand on ladder without safety pins engaged.

- b. Close the release valve lever (Figure 3-4, 14) by turning in a clockwise direction to its stop.
- c. Remove both lock pins (9) from the platform holes and secure in last hole of channel located in center of platform toward ladder.
- d. Open vent plug (Figure 3-4, 8). Operate the pump handle (Figure 3-1, 6) until the platform reaches the desired height.
- e. Install the lock pins (Figure 3-1, 9) in the appropriate holes on the platform. Lower platform by opening release valve lever (Figure 3-4, 14) counterclockwise, until platform eases down on the lock pins (Figure 3-1, 9) close hydraulic release valve lever and close vent plug.

TO 35A4-2-5-1

2.2.2 To Lower the Platform.

**WARNING**

- The platform rate of descent shall be controlled by the operator to prevent damage to the stand and/or personal injury.
- If binding occurs while platform is being lowered, insert safety locks before performing any maintenance. Do not place arms through scissors area.
- a. If binding occurs when attempting to slide upper ladder (part No. 51D24860) into lower ladder (part No. 54E6349) during operation or installation, correct problem by reworking lower ladder.
- b. Bend the edge of slide channel (opposite the step) outward 1/4 inch. Thereby changing the inside dimension of the slide channel from 1 inch to 1-1/4 inches.
- c. Open vent plug and raise the platform slightly to remove any load on the lock pins (Figure 3-1, 9).
- d. Remove safety pins from side channels and secure in last hole of channel located in center of platform toward ladder.
- e. Open valve spindle (Figure 3-4, 14). The rate of descent is controlled by the opening between the spindle and spindle seat.

**CAUTION**

Before towing maintenance platform, make sure that the rear casters are locked in the towing position by inserting the swivel lock pins. Raise platform a few inches to clear first or second platform safety pin hole and install safety pin to hold in raised position when

towing stand through snow or uneven rough terrain. This will protect inner ladder from dragging and prevent damage to ladder.

- f. Release caster brakes on casters (15) so that the stand is maneuverable.

2.3 **LUBRICATION.** Refer to nonpowered AGE workcards TO 35-1-246WC-1.

2.4 **INSPECTION.** Prior to each days use, determine that the B-4A platform is in serviceable condition.

**NOTE**

During inspection, if contamination of hydraulic fluid exists: drain and flush regardless of time.

2.5 **TROUBLE SHOOTING.** For trouble shooting information, refer to Table 2-1.

2.5.1 **Platform Operation Spongy.**

- a. Remove ram from scissors and invert to place the hose to the ram at the upper most point.
- b. Make sure reservoir is full; operate hand pump slowly until ram piston is fully extended.
- c. Open spindle release valve lever and reservoir vent valve.
- d. Force hydraulic fluid and air back into the reservoir by depressing the ram piston fully, allowing trapped air to leave system through vent valve.
- e. Reinstall the ram: if platform operation is spongy, repeat the above steps.
- f. Fully lower platform and make sure reservoir is filled after the bleeding operation is completed.

Table 2-1. Trouble Shooting Data

TROUBLE	PROBABLE CAUSE	REMEDY
PLATFORM RAISES SLIGHTLY AND STOPS	Lock pins still in position.	Release pressure and remove lock pins.
PLATFORM RAISES IRREGULARLY	Foreign matter between rollers and channels or platform.	Remove foreign matter.
PLATFORM WILL NOT RAISE	Leak in hydraulic line or fittings.	Tighten fittings, repair or replace line.
	Defective pump.	Repair or replace pump.

Table 2-1. Trouble Shooting Data - Continued

TROUBLE	PROBABLE CAUSE	REMEDY
PLATFORM WILL NOT RAISE (CONT)	Defective ram.	Repair or replace ram.
	Hydraulic fluid at a low level.	Add hydraulic fluid.
PLATFORM OPERATES SPONGY	Air in hydraulic system.	Bleed air, see paragraph 2.5.1.
STAND WILL NOT LOWER	Lock pins still in position.	Raise platform and remove lock pins.
	Obstruction blocking fluid flow.	Install lock pins, release pressure and inspect (internal) hydraulic pump and associated lines. Remove obstruction.

## 2.6 RAM AND RESERVOIR DRAINING AND FLUSHING

- a. Jack stand up and install lock pins, allow stand to rest on lock pins.

### WARNING

Hydraulic fluids often contain additives which may affect skin, eyes, and respiratory tract. These additives can be readily absorbed through the skin. Make sure fluid does not remain on skin. Use in a well ventilated area and avoid breathing of vapors. Neoprene gloves and safety goggles/faceshield shall be worn. Keep away from sparks and flames.

- b. Disconnect hydraulic hose at bottom of ram and pump fluid from the reservoir.
- c. Disconnect the ram from the inner scissor attachment and bottom out the ram piston to allow for complete draining.
- d. Remove pump top cover and make sure reservoir is completely drained and clean. Inspect pump screen and gasket; replace if necessary.
- e. Remove the ram from the outer scissor ram collar mount. Submerge the ram fluid supply port in a container/bucket of clean MIL-PRF-5606/MIL-PRF-83282. Fully extend and retract the ram piston until the contaminants are removed. Change fluid in the container if required.
- f. Fill pump reservoir to approximately 1/2 of capacity with clean MIL-PRF-5606/MIL-PRF-83282. Install the pump cover. Actuate the pump until the fluid is com-

pletely drained from the pump and hose.

- g. Attach the hydraulic hose to the ram and service the pump reservoir with clean MIL-PRF-5606/MIL-PRF-83282. Bleed the system in accordance with paragraph 2.5.1.

## 2.7 REMOVE AND REPLACE HYDRAULIC RAM.

### 2.7.1 Removal.

### WARNING

Do not place arms through scissors assembly.

- a. Raise stand to a height that is comfortable for the person changing the ram.
- b. Install both safety pins (Make sure rollers are against pins). Use proper pin holes.
- c. Open valve on pump to relieve hydraulic pressure.
- d. Check to see that rollers are resting against safety pins.
- e. Disconnect hydraulic hose at base of ram.
- f. Disconnect ram plunger from attachment point of inside scissors.

### CAUTION

Be sure to have a firm grip on ram when bolt is removed. Collar assembly and ram weigh approximately 20 pounds.

TO 35A4-2-5-1

- g. Remove collar assembly and hydraulic ram from outside scissors.

2.7.2 Installation.

**WARNING**

Do not place arms through scissors assembly.

- a. Connect hydraulic hose to base of ram.
- b. Bleed hydraulic ram assembly in accordance with para-

graph 2.5.1.

- c. Attach collar assembly, with ram attachment point on outside scissors.
- d. With pump assembly, pump up plunger until it aligns with attachment point on inside scissors and install hardware.
- e. After all hardware is secure, raise platform to take pressure off safety pins.
- f. Remove safety pins and lower stand.

## CHAPTER 3 REPAIR INSTRUCTIONS

### 3.1 DISASSEMBLY.

Disassemble in the same order as the index numbers assigned to the exploded view illustration and as follows:

- a. Place the Maintenance Platform in the lowest position before starting disassembly.
- b. Drain hydraulic oil from the pump, ram, and hydraulic hose assembly.
- c. Remove safety lock pins (Figure 3-1. 9) and lower the platform to the lowest position.
- d. To remove the platform from the scissor mechanism, begin by removing the end guard rails (Figure 3-1. 11) and the side guard rails (9).
- e. Disconnect hose assembly (Figure 3-3. 1) at pump (Figure 3-1. 7), remove four nuts and bolts from the pump base and remove pump (Figure 3-1. 7), if required to remove.
- f. Remove upper ladder (Figure 3-1. 1) by removing four nuts and four bolts.
- g. Align top outside scissor hinge pin (Figure 3-2. 1) with holes in platform side channels, by raising platform with external over head hoist. Remove rollpins (2), remove scissors hinge pins (1), rollers (3), and washers (4), using slide hammer with 3/8-in X 24 UNF bolt for puller.
- h. Carefully raise the platform to remove it from scissor assembly.
- i. Remove screws (Figure 3-3. 3) and 5 clamps (2) securing hydraulic hose (1) to the inner and outer scissors. Remove nut (38), bolt (39) and bushing (40) from top of ram plunger. Remove 6 screws (59) from bushings. Remove ram assembly (37) from inner scissors.
- j. Align bottom inside scissor hinge pin (Figure 3-2. 14) with holes in main base frame (Figure 3-1. 30). Remove rollpins (Figure 3-2. 13), hinge pins (Figure 3-2. 14) and rollers (Figure 3-2. 16) and washers (Figure 3-2, 15).
- k. Remove two rollpins (Figure 3-2. 8) and two washers

(9) from the scissor pin (10), and remove scissor pin (10).

- l. Remove inside scissor (Figure 3-2. 7).
- m. Remove two rollpins (Figure 3-2. 5) and remove hinge pins (6) from outer scissor (17) and remove scissor.

### 3.2 REASSEMBLY.

- a. Reassemble in reverse order. Lubricate rollers and guides with MIL-PRF-23398 or equivalent. Use oil MIL-PRF-2104 or equivalent on scissors hinge pin, bushing, and other points requiring light lubrication.

#### WARNING

Perform all solvent cleaning operations in an approved cleaning cabinet or in a well ventilated area. Avoid prolonged breathing of vapors. Avoid eye and repeated skin contact. Keep solvents away from sparks and flames.

### 3.3 CLEANING

Remove all surface dirt and grease from structural members with dry cleaning solvent. Federal Specification MIL-PRF-680, Type II, III or equivalent. Particular attention should be given to removal of any foreign matter in scissor channels and ladder guides.

### 3.4 INSPECTION.

For inspection information, refer to Table 3-1.

#### 3.4.1 Visual Inspection of Pump and Ram.

#### NOTE

When an accumulation of water is found in the hand-rail mounting socket a hole 1/4 inch diameter shall be drilled in the bottom of socket to permit the water to drain from socket.

- a. Raise pump handle and inspect plunger for scoring nicks and corrosion.

- b. Pressurize the system and check pump handle and platform for creepage, observing pump piston, cover, gaskets and packing for leakage.
- c. Inspect ram for leakage. Inspect wiper and O-ring, and check for serviceability. Also check for alignment.

**Table 3-1. Inspection of Parts**

PART	INSPECT	INSPECT FOR	DISPOSITION
Scissors	Roller	Damage	Replace
	Roller	Damage	Replace
	Hinge pin	Damage	Replace
Casters	Wheel surfaces	Cracks, wear, flat spots	Replace if operation is affected
	Lock	Braking efficiency	Straighten if bent Replace if worn
Ram	Plunger	Alignment and scoring	Replace
	Plunger Cup	Cuts, wear, and decomposition	Replace
	Wiper	Cuts, wear, and contamination	Replace
	O-ring	Tearing or swelling	Replace
Pump	Plunger and Pump Cylinder	Scoring or nicks	Replace
	Release valve spindle	Wear or grooves on needle surfaces	Replace
	Check balls	Concentricity and nicks	Replace
	All gaskets and packings	Tearing or swelling	Replace
Platform/Ladder	Expanded Metal	Cracks/tears in expanded metal	Repair or replace See paragraph 3.5.1
All Structural Parts		Alignment and weld cracks	Straighten or reweld
	Surface	Corrosion	Treat as required
All Threaded Parts		Threads	Re-thread or replace



### 3.5 REPAIR AND REPLACEMENT

#### WARNING

- Welding operations produce heat, highly toxic fumes, injurious radiation, metal slag and airborne particles. Welding goggles, the proper tinted lenses, apron or jacket and welder's boots are required.
- Conduct all painting operations only in an approved spray booth equipped with adequate ventilation and exhaust.

#### CAUTION

When assembling the ram assembly, part No. RA575-1, make sure the ram assembly is properly assembled in accordance with TO 35A4-2-5-4, and prevent damaging or marking the plunger during assembly procedures.

#### 3.5.1 Repair.

In general, repair shall be limited to the replacement of detail parts. Replace any detail part inspected and found to be unsatisfactory for continued use. Bent or distorted parts such as screws, bolts, pins, washers, rollers, and casters should be replaced. Cracked or broken large structural parts should be welded or replaced.

3.5.1.1 When the caster mounting pad weld is cracked or broken repair by fabricating and installing reinforcing plates (part No. 7037081-01) in accordance with AF Drawings 54E6347 and 54E6348.

3.5.1.2 After welded areas have cooled, paint the newly repaired area in accordance with TO 35-1-3.

3.5.1.3 When the ladder assembly steps have cracked or broken attaching welds, repair by fabricating and installing reinforcing plates, in accordance with AF Drawing 54E6349.

3.5.1.4 When bumper pad eyelets are torn out, repair by attaching with locally fabricated washers, 2 inches long by 1/2 inch wide and 0.063 inch thick, made from 2024-T3 aluminum (NSN 9535-00-232-0378). Corners will be rounded to no less than 1/8 inch radius.

3.5.1.5 Caster brake handles that are too short to properly set the brake can be extended by tack welding a length of 5/8 inch steel pipe to increase handle length to five inches, when measured from the pivot point.

#### 3.5.1.6 Scissors Outer Bar Repair Procedures.

- Remove damaged bar and replace with pipe per ASTM A53, which has superseded WWP-406 and ASTM A120. The bar should be Weight A (standard) class 1 (black) with an outside diameter of 0.840 and wall thickness of 0.147 per drawing 51D24865 and 51D24866. Per the same drawings, the tubes shall be reamed to 0.625 (+0.003/-0.000) for a distance of four inches from the end of each tube to accommodate pin part No. 51B24889.
- Weld all around the area where the tubing was removed using 3/32 fillet welds.

#### WARNING

The use of eye protection while drilling, grinding, rotary filing and sanding with pneumatic tools is required. Failure to comply with requirement could result in serious personal injury.

- Drill 3/16 inch holes through pipe per Drawing No. 51D24866 (inside scissor) or No. 51D24865 (outside scissor) to accept pin part No. 51-040-187-1000.

3.5.1.7 To adjust brake on caster, remove the wheel from the caster. Use an adjustable-jaw wrench of 12 inch length and insert the end of brake pad in the end of the wrench and apply pressure until the pad bends. Reinstall the wheel and check for the desired braking action. Repeat the instructions until the desired braking action is obtained.

#### 3.5.1.8 Lubrication of Scissor Roller and Hinge Pin.

- Add provisions for lubrication of rollers on attrition basis when repairs necessitate removal or replacement of hinge pin, part No. 51B24889.
- Drill a 1/4 inch diameter hole through pin (two holes in line), 1/2 inch from the internally threaded end of the pin. The 1/4 inch hole shall be positioned 90 degrees to the existing 5/16 inch diameter hole on opposite end of pin.
- Install set screw, part No. MS51964-156 in threaded open end of pin to prevent dirt and dust from plugging oil hole. Apply lubricating grease/oil periodically through threaded open end of shaft. Grease fittings may be left in the aft roller pins, but must be replaced with set screws in the forward end.

3.5.1.9 Lubrication fitting - castor wheel. When pressed type lubrication fitting becomes damaged or lost, replace with

## TO 35A4-2-5-1

threaded type fitting, part No. MS15001-3. Thread hole with 1/4-28 UNF-3B type threads and thread fitting, part No. MS15001-3 until snug. Do not over tighten.

3.5.1.10 Optional repair of broken bushings or elongated holes on first three safety pin holes, floor plate assembly, part No. 51E24855.

- a. Fabricate a 1020 steel block, 5 inches x 1-1/4 inches x 1-1/4 inches.
- b. Cut a 5 inch long by 1-1/4 inch wide section from top forward end of platform. Remove damaged bushings.
- c. Set steel block in cut out section, and mark the three safety pin holes using bottom channel holes as guide. Remove block and drill the three safety pin holes in block.
- d. Reinstall block into cut out section on top of platform and make sure holes in block align with holes in channel. Weld around all four sides on top side.

3.5.1.11 Optional repair of damaged end legs mounting holes, frame assembly part No. 51E24856. Repair damaged leg mounting holes by straightening, welding and installing flat washer, part No. MS27183-15 or equivalent, under nut next to frame to prevent nut from pulling through frame structure.

### WARNING

The use of eye protection while drilling, grinding, rotary filing and sanding with pneumatic tools is required. Failure to comply with this requirement could result in serious personal injury.

3.5.1.12 Optional repair of pump cover on part No. P807-2 hydraulic hand pump. Repair worn or elongated beam pin mounting hole on pump cover as follows:

- a. Drill a 7/16 inch hole on pump cover beam pin mounting hole.
- b. Manufacture a bushing with dimension of 7/16 inch outside diameter and 5/16 inch inside diameter by 1/2 inch length. Press fit bushing into hole.

3.5.1.13 Expanded metal used for walking area on the steps and platform shall be welded when there are four or more cracks/tears per two square foot area or two adjacent cracks/tears or if deformation of the expanded metal has occurred. Cracks which do not meet the above criteria shall be deemed serviceable.

Legend

- 1 Upper Ladder
- 2 Pintle Hook
- 3 Lower Ladder
- 4 Hose Assembly
- 5 Handle Grip
- 6 Handle
- 7 Pump Assembly
- 8 Hydraulic Ram
- 9 Lock Pin
- 10 Side Rail
- 11 End Rail
- 12 Instruction Plate
- 13 Warning Plate
- 14 Bumper
- 15 Platform
- 16 Outside Scissor
- 17 Inside Scissor
- 18 Swivel Casters
- 19 Ladder Brace
- 20 Swivel Casters
- 21 Leg Brace
- 22 Catch Lever
- 23 Compression Spring
- 24 Catch Bracket
- 25 Lanete Bar
- 26 Towbar
- 27 Towbar
- 28 Forward Leg
- 29 Rear Leg
- 30 Frame

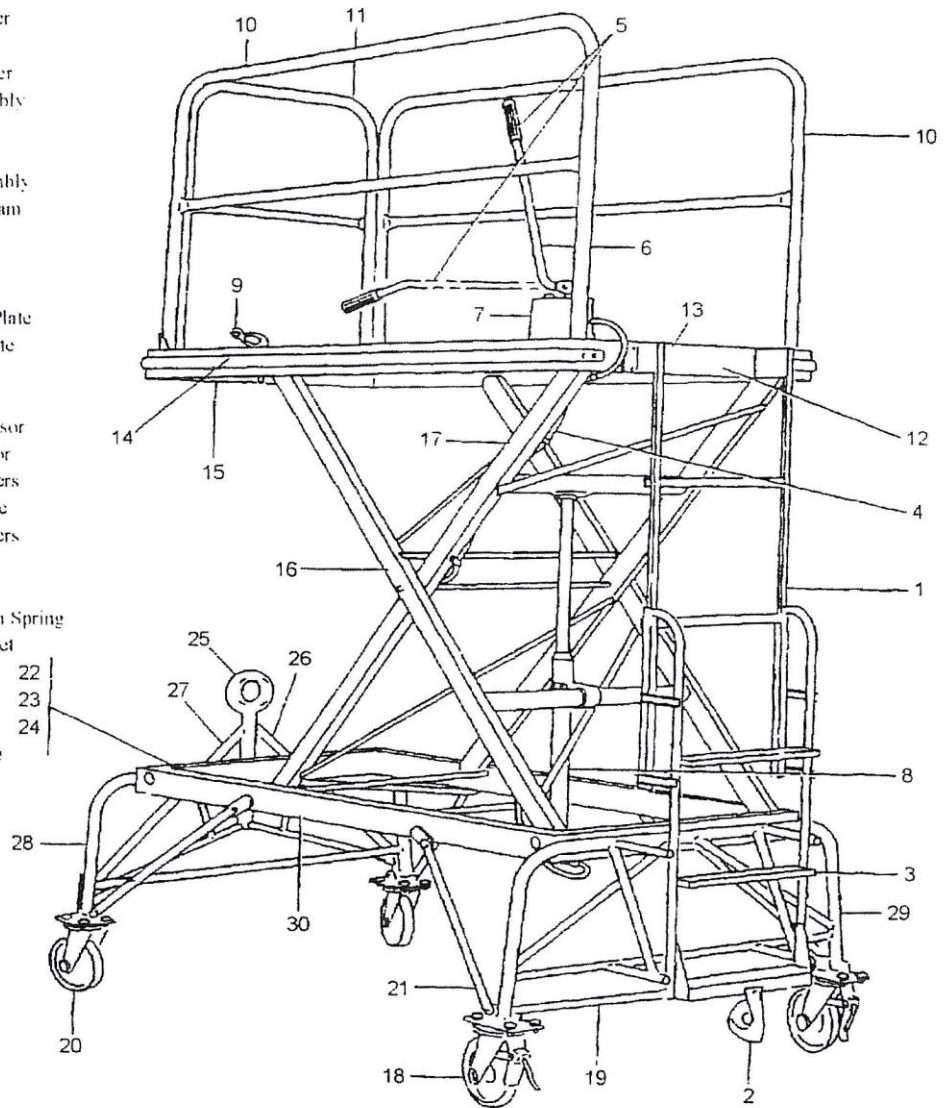


Figure 3-1. Platform, Adjustable Aircraft Maintenance, USAF Type B-4A

Legend

- 1 Upper Ladder
- 2 Pintle Hook
- 3 Lower Ladder
- 4 Hose Assembly
- 5 Handle Grip
- 6 Handle
- 7 Pump Assembly
- 8 Hydraulic Ram
- 9 Lock Pin
- 10 Side Rail
- 11 End Rail
- 12 Instruction Plate
- 13 Warning Plate
- 14 Bumper
- 15 Platform
- 16 Outside Scissor
- 17 Inside Scissor
- 18 Swivel Casters
- 19 Ladder Brace
- 20 Swivel Casters
- 21 Leg Brace
- 22 Catch Lever
- 23 Compression Spring
- 24 Catch Bracket
- 25 Lamete Bar
- 26 Towbar
- 27 Towbar
- 28 Forward Leg
- 29 Rear Leg
- 30 Frame

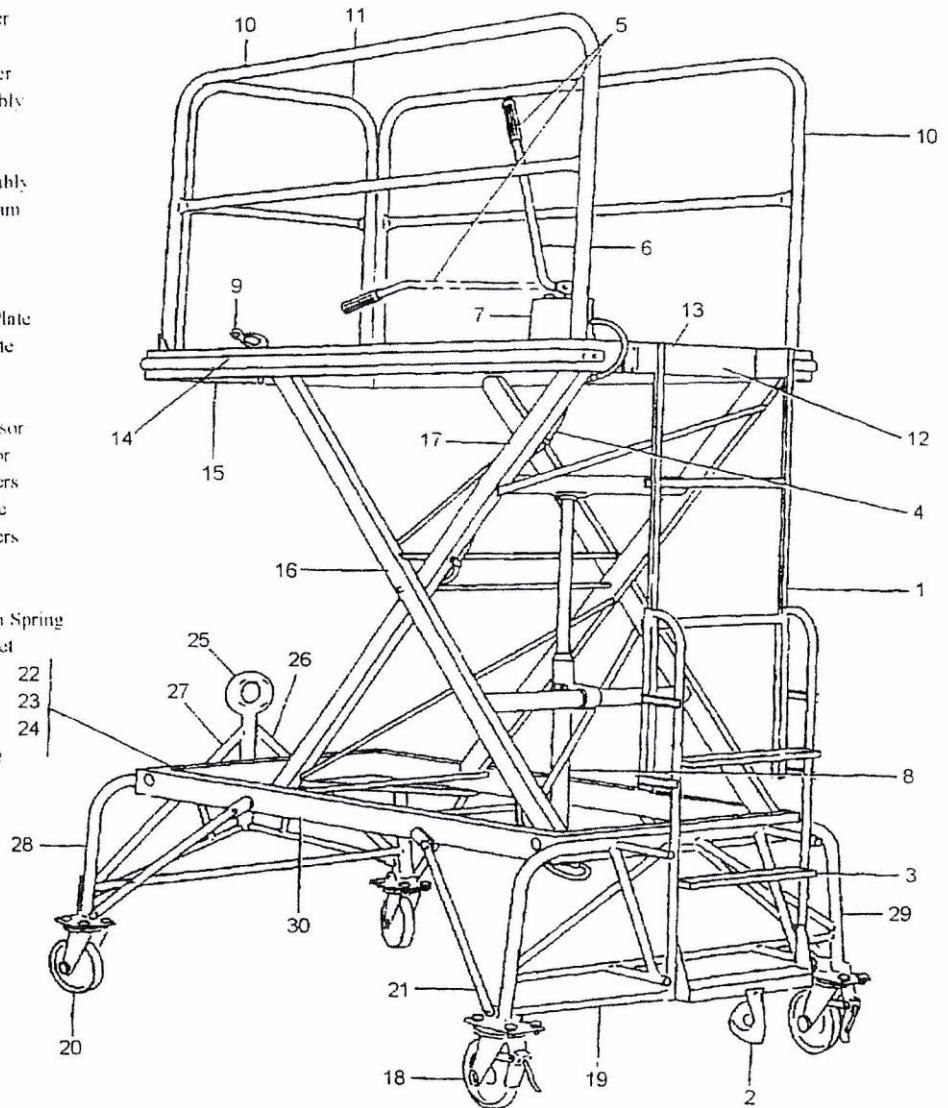


Figure 3-1. Platform, Adjustable Aircraft Maintenance, USAF Type B-4A

Legend for Figure 3-2

- |                   |                           |                             |
|-------------------|---------------------------|-----------------------------|
| 1 HINGE PIN       | 7 INSIDE SCISSOR ASSEMBLY | 13 ROLL PIN                 |
| 2 ROLL PIN        | 8 ROLL PIN                | 14 HINGE PIN                |
| 3 SCISSORS ROLLER | 9 WASHER                  | 15 WASHER                   |
| 4 WASHER          | 10 SCISSOR PIN            | 16 SCISSOR ROLLER           |
| 5 ROLL PIN        | 11 ROLL PIN               | 17 OUTSIDE SCISSOR ASSEMBLY |
| 6 HINGE PIN       | 12 HINGE PIN              |                             |

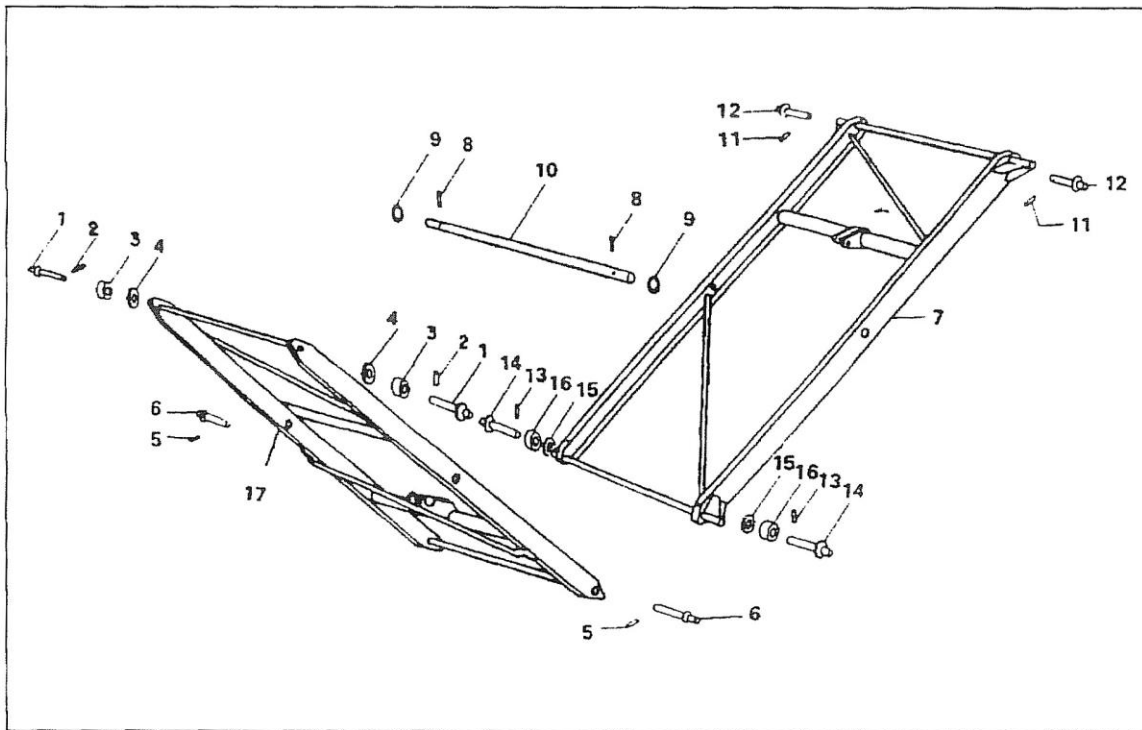


Figure 3-2. Scissors Assembly

TO 35A4-2-5-1

Legend for Figure 3-3

1 Hydraulic Hose	31 Check Ball
2 Hose Clamp	32 Check Ball
3 Bolt	33 Base Cover
4 Nut	34 Base Cover Gasket
5 Hose Bushing	35 Pump Base
6 Hose Nipple	36 Base Cover Screw
7 Handle	37 Ram Assembly
8 Pump Handle Grip	38 Self-Locking Nut
9 Self-Locking Nut	39 Aircraft Bolt
10 Aircraft Bolt	40 Upper End Ram Bushing
11 Pump Assembly	41 Plunger Gland Stop Nut
12 Lock Washer	42 Plunger Wiper
13 Aircraft Bolt	43 Ram Plunger
14 Pump Beam	44 Stop Steel Nut
15 Beam Pin Retaining Ring	45 Plunger Cup Spreader
16 Beam Pin	46 Grommet
17 Pump Plunger Pin	47 Plunger Cup
18 Cylinder and Piston Assembly	48 Plunger Disc
19 Pump Plunger Seal	49 Plunger Disc O-ring
20 Plug and Vent Assembly	50 Ram Cylinders
21 Filter Screen	51 Self-Locking Nut
22 Release Valve Lever Screw	52 Aircraft Bolt
23 Release Valve Lever Washer	53 Jack Mount Ram Collar Bushing
24 Release Valve Lever	54 Jack Mount Ram Collar
25 Release Valve Spindle	55 Headless Set Screw
26 Release Valve Spindle Packing Nut	56 Jack Mount Ram Collar
27 Release Valve	57 Jack Mount Ram Bearing
28 Valve Plug	58 Washer
29 Valve Plug Gasket	59 Bolt
30 Check Ball Spring	60 Screw

Figure 3-3. Hydraulic Assembly (Sheet 1 of 2)

(3-7 blank)/3-8

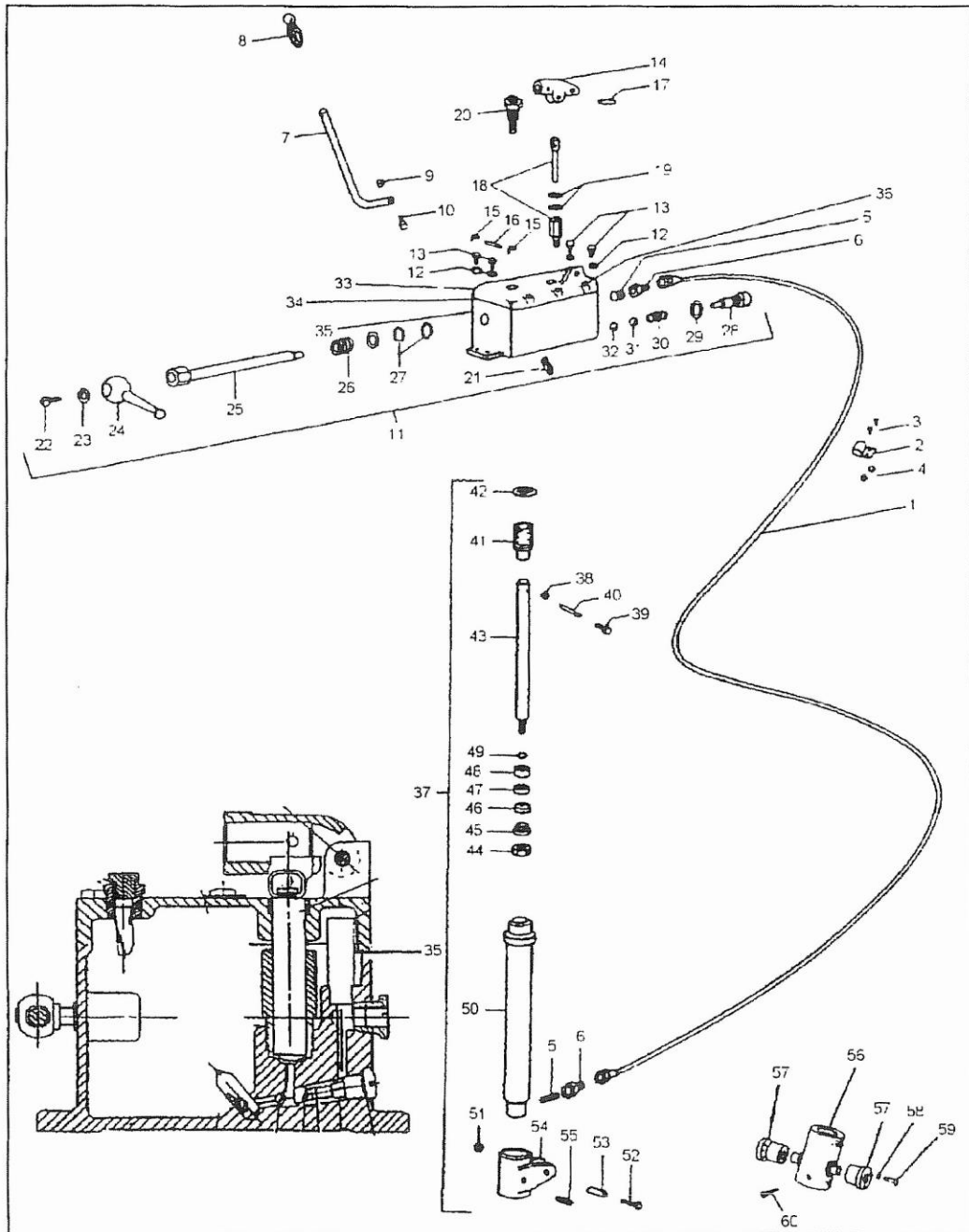


Figure 3-3. Hydraulic Assembly (Sheet 2)

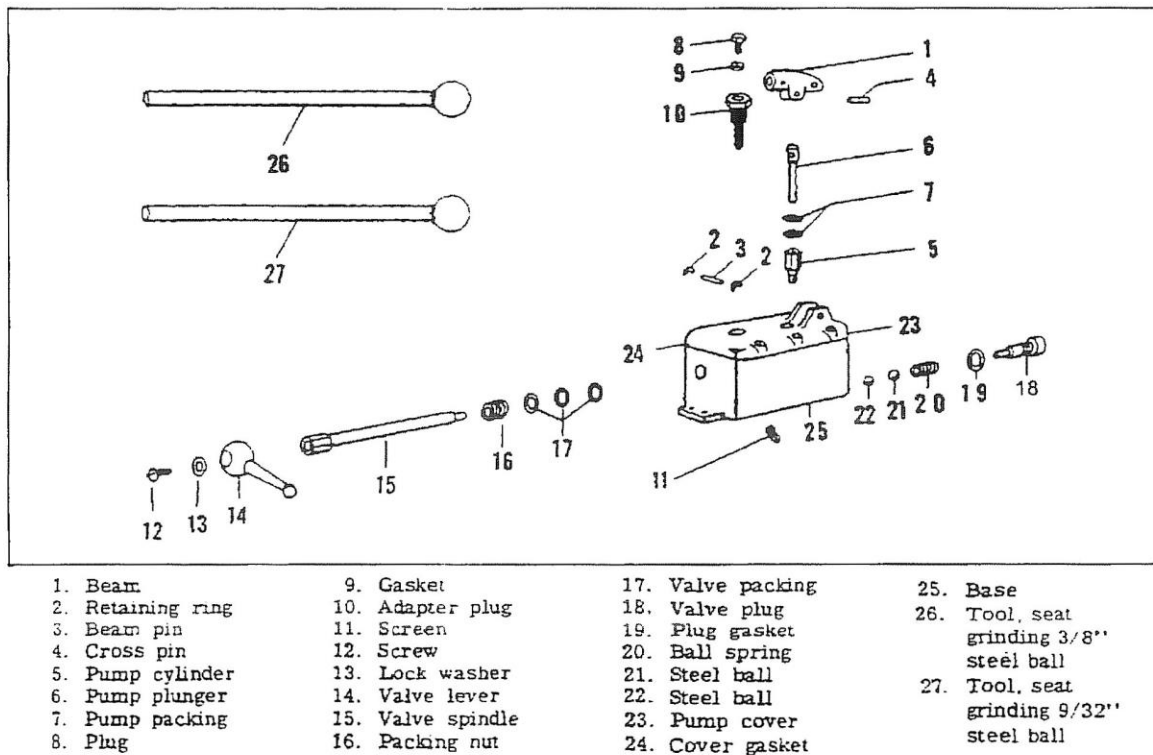


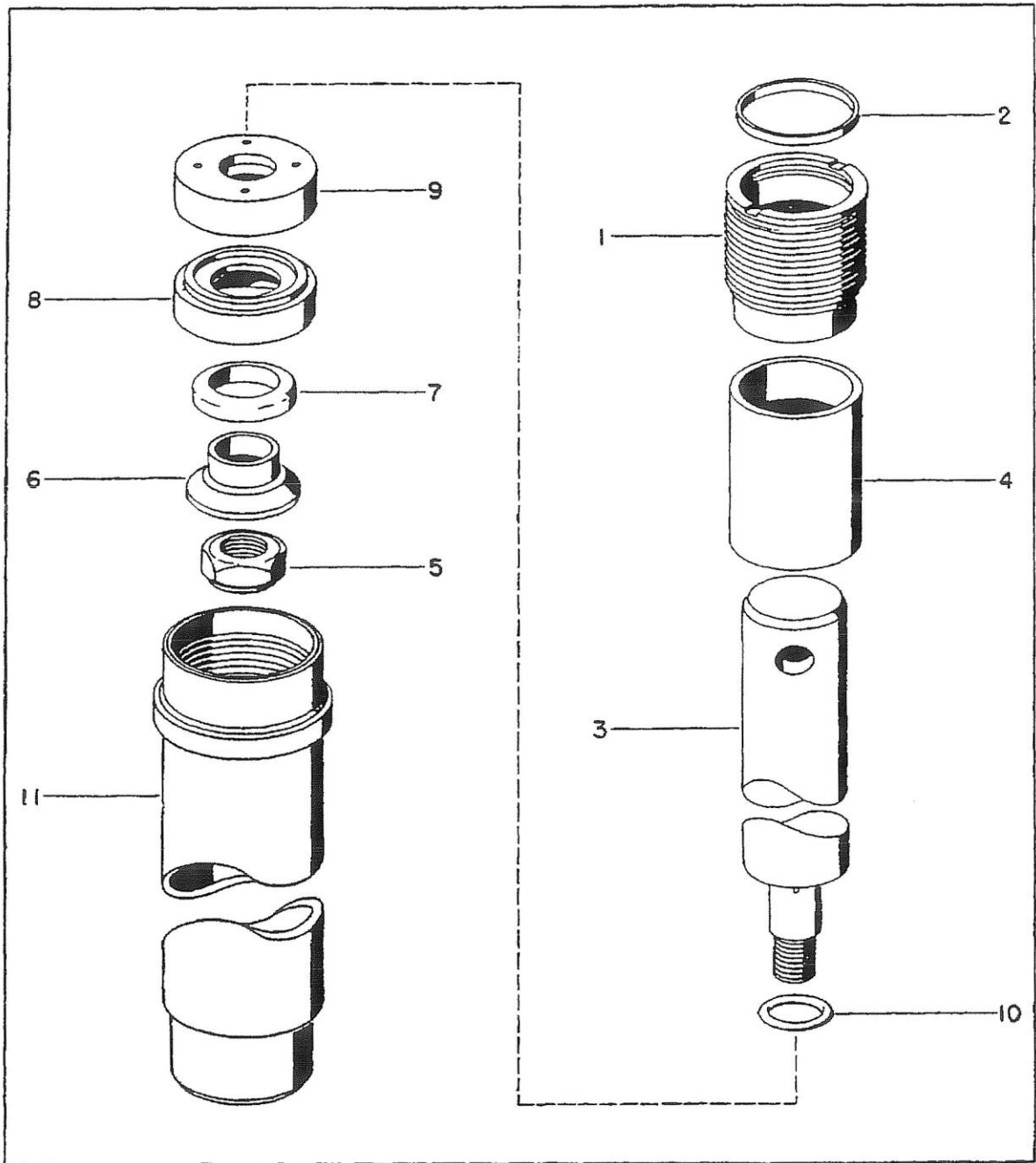
Figure 3-4. Pump, Power Packer and Special Tools

3.5.1.14 Repair of the hydraulic pump will normally be through replacement of component parts. However, when the check ball seats become rough or pitted, resurfacing will be necessary. This can be accomplished by applying lapping compound to the ball end of the special resurfacing tool (Figure 3-4, 26 and 27) and rotating back and forth approximately 90 degrees, occasionally lifting tool off of the seat. After resurfacing of the check ball seats, care must be taken to make sure that all abrasive is removed prior to reassembling of the pump. Clean all removed hydraulic parts with MIL-PRF-680, Type II, III or equivalent solvent or equivalent before assembling. Ram plunger cup (Figure 3-5, 8), O-ring (10), and plunger wiper (2) shall be dipped in clean hydraulic fluid conforming to Specification MIL-PRF-5606 prior to assembly.

3.5.1.15 After reassembly of the pump, inspect to determine if the pump beam strikes the pump cover at the plunger seal or the handle strikes the vent plug. If either condition exists, it can be remedied by machining the inside diameter of a plain steel washer, (NSN 5310-00-777-5815) ID 0.634, OD 1.87, thickness to 0.005 inches larger than the pump plunger to prevent binding. Remove beam and plunger from cover. Install washer over plunger and reinstall beam and plunger in cover and secure. The handle may be installed vertically or horizontally (Figure 3-1, 5) as desired.

3.5.1.16 The special resurfacing tools, 2 each (Figure 3-4, 26 and 27.) are to be obtained by local manufacture by welding 3/8 and 9/32 inch steel balls to 1/4 inch drill rod approximately 7 inches long.





- |                  |             |                |              |
|------------------|-------------|----------------|--------------|
| 1. Stop nut      | 4. Spacer   | 7. Grommet     | 10. "O" ring |
| 2. Plunger wiper | 5. Stop nut | 8. Plunger cup | 11. Cylinder |
| 3. Plunger       | 6. Spreader | 9. Disc        |              |

Figure 3-5. Ram, Hydraulic



equipment (non-powered) to change tires and casters and for lubrication during periodic inspection and maintenance. Eliminates the use of hydraulic jacks and hoists used for this purpose.

- Puller assembly, hinge pin - pin removal tool. See Figure 3-7. (Local manufacture in accordance with Air Force Drawing 7947381, CAGE: 98750.) Puller assembly, part No. 7947381-10 is used for removal of hinge pin, part No. 51B24889.
- Scissor Support Bracket, Figure 3-8 (locally manufactured in accordance with Air Force Drawings 8140552 and 8140553, CAGE: 98750). Scissor Support Bracket may be used when maintenance is being accomplished on stand scissors.

### **WARNING**

The use of eye protection while drilling, grinding, rotary filing and sanding with pneumatic tools is required. Failure to comply with this requirement could result in serious injury.

### 3.10 OPTIONAL REPAIR OF LOCK PINS.

A hole may be drilled on the lock pins whenever the D-rings on the chain break from the lock part. A 7/64 to 1/8 drill size can be used to drill the hole through the part. This approach will allow the D-ring or the key ring to be inserted in the hole and preclude the previous discarding action. Use Air Force Drawing 51C24894.

### 3.11 OPTIONAL REPAIR OF LOCK PIN CHAIN.

As optional repair for chain, pin lock part No. RRC-271, use rope, wire part No. 84610 with swaging, sleeve wire part No. 10165762.

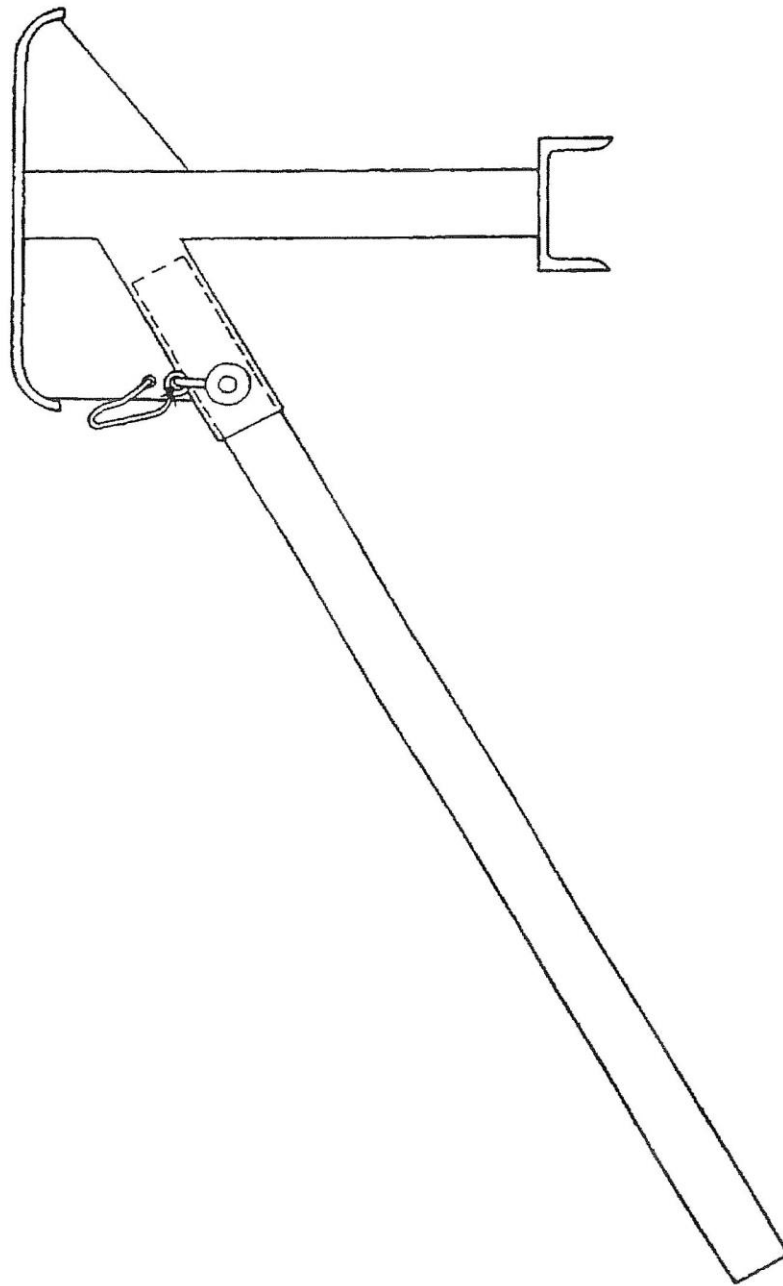


Figure 3-6. Stand Assembly. part No. 7947145

3.5.1.17 Pump Test

- a. Attach high pressure gauge (0-3000 psi) while pump is installed on stand. Install tee (T) fitting between pump and hose assembly. This T can be capped when gauge is removed.
- b. Operate pump and check that relief valve relieves at 2800 + 100 psi. Pressurize pump to relief valve setting and hold. 300 psi drop is maximum allowed in 30 seconds.

**WARNING**

The use of eye protection while drilling, grinding, rotary filing and sanding with pneumatic tools is required. Failure to comply with this requirement could result in serious personal injury.

3.5.2 Optional Repair of Handrails. New stands received with the cables securing the rails to the platform with the swagged cables attached may be secured using the optional repairs below.

- a. Make sure that handrails are properly installed and bottomed-out in rail sockets.
- b. Using an "F" size drill, drill a 0.257 inch hole 2 inches from top of socket tube. Drill through gusset and center line of socket and handrail in six places.
- c. Attach handrails to sockets using bolt, part No. MS90726-15, washer, part No. MS35338-44, and nut, part No. MS51968-3.
- d. Alternate parts may be used:
  - Pin, Quick Release, part No. NAS 1335A2S24D, NSN 5340-00-001-1969.
  - 1/16 inch steel rope, NSN 4010-00-222-4482
  - Swage, NSN 4030-00-431-5536.
- e. Swage rope to pin and work platform.

3.5.3 Optional Repair of Floor Supports. To prevent safety pins and hardware from falling through existing expanded metal, three strips of grating or smaller expanded metal 23 inches long x 10 inches wide may be tack welded or safety wired below and next to existing floor.

3.6 LUBRICATION.

Refer to nonpowered AGE workcards TO 35-1-246WC-1.

3.7 REASSEMBLY.

Reassembly is in general the reverse order of disassembly with the following addition:

3.7.1 Hydraulic Hose. Minimum radius of bend at upper end of hose shall be 4 inches measured from end of platform to center of hose OD. Hose coupling at hydraulic ram must extend to the left to avoid sharp bend in hose.

3.7.2 Hydraulic Ram. To prevent inside scissor assembly, part No. 51D24866 from being installed upside down, make sure ram mounting bracket is pointing slightly upward and towards towbar end when platform is resting at its lowest position.

3.7.3 Scissor Assembly. When assembling upper sections of inside scissor (Figure 3-1, 17) and outside scissor (16) to the platform, the pin shield, with the flanges in the roller guide space, should extend lengthwise toward the rear of the platform.

3.8 OPERATIONAL TEST.

- a. Lock the caster brakes and remove lock pins from platform holes.
- b. Close the pump valve lever and open the vent plug.
- c. Operate the pump handle until a height of 7 feet ±2 inches is obtained. This measurement is from the ground to the top of the platform floor. If the platform can be operated past this height, repair in accordance with Figure 3-9 to limit operation of the platform to 7 feet (approximately).

**NOTE**

Install locking pins after the platform has attained the desired height and close vent plug.

3.9 SPECIAL TOOLS.

The following tools are required to resurface check ball seats of the hydraulic pump. (Figure 3-4)

- Tool, 3/8 inch steel ball, (local manufacture).
- Stand assembly, lift general purpose. (Local manufacture in accordance with Air Force drawing 7947145.) See Figure 3-6. Work stand can be used for raising support

### 3.12 OPTIONAL REPAIR OF TOWBAR CATCH ASSEMBLY SPRING.

The following steps refer to Figure 3-10.

- a. Remove Towbar Catch Assembly.
  - (1) Remove spring (1).
  - (2) Remove cotter pin (5) and pin (4).
  - (3) Remove locking nuts (6) and bolts (7).

#### WARNING

The use of eye protection while drilling, grinding, rotary filing and sanding with pneumatic tools is required. Failure to comply with this requirement could result in serious personal injury.

- b. Drill holes in Towbar Catch Assembly.

#### NOTE

Refer to TO 32-1-2 for drill operations, procedures, and/or drilling techniques.

- (1) Drill Towbar Catch Lever.
  - (a) Mount lever (2) securely in vise.
  - (b) Mark holes to be drilled.
  - (c) Drill two 3/32 inch diameter holes at specified location as shown in Figure 3-10.
  - (d) File off any metal burrs.
- (2) Drill Towbar Catch Bracket.
  - (a) Mount bracket (3) securely in vise.
  - (b) Mark holes to be drilled.
  - (c) Drill four 3/32 inch diameter holes at specified location as shown in Figure 3-10.
  - (d) File off any metal burrs.
- c. Paint unprotected surfaces in accordance with TO 35-1-3.
- d. Assemble Towbar Catch Assembly.

- (1) Align towbar catch lever (2) into position with towbar catch bracket (3) and install pin (4) and cotter pin (5).
- (2) Install spring (1).
- (3) Safety wire spring.
  - (a) Cut two pieces of 0.032 safety wire 12 inches long.
  - (b) Safety wire the spring (1) to both the towbar catch lever (2) and bracket (3). Thread the safety wire through the holes to create an X over the top of the nipple, making sure you go through the spring.

- e. Install Towbar Catch Assembly.
  - (1) Position towbar catch assembly on the unit.
  - (2) Install bolts (7) and nuts (6) and tighten.

PARTS NEEDED	PART NO.
Spring	54A6298
Lever, Towbar Catch	54C6291
Bracket, Towbar Catch	54C6289

### 3.13 REPLACING DAMAGED BUMPER PAD.

The following steps refer to Figure 3-11.

- a. Proceed to next further eyelet on both sides of the damaged area.
- b. Cut bumper pad towards the center of the eyelet and around the eyelet towards the damaged area.
- c. Remove screws holding bumper pad.
- d. Take the new section of bumper pad and cut the same length as the removed piece.
- e. Cut the new piece towards the center of the eyelet and around the eyelet the opposite direction of the cut on the damaged pad.
- f. Take the new section and overlap the eyelets.
- g. Re-install screws to secure bumper pad.

**TO 35A4-2-5-1**

h. To prevent FOD from becoming lodged between the bumper pad and platform assembly do the following:  
Starting at left side of ladder apply a continuous bead of

silicone (MIL-A-46146 or equivalent) between the bumper pad part No. 55J6219-9 and platform assembly part No. 51E24855, finishing at the right side of ladder.

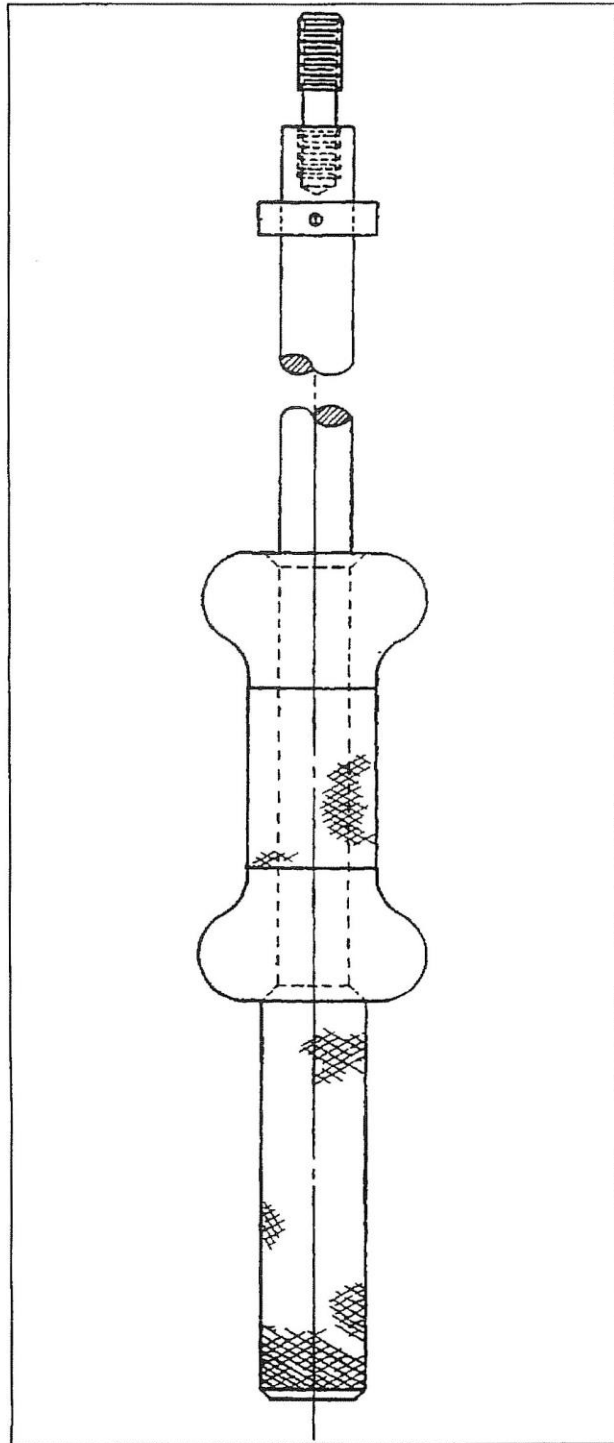


Figure 3-7. Puller Assembly, part No. 7947381-10



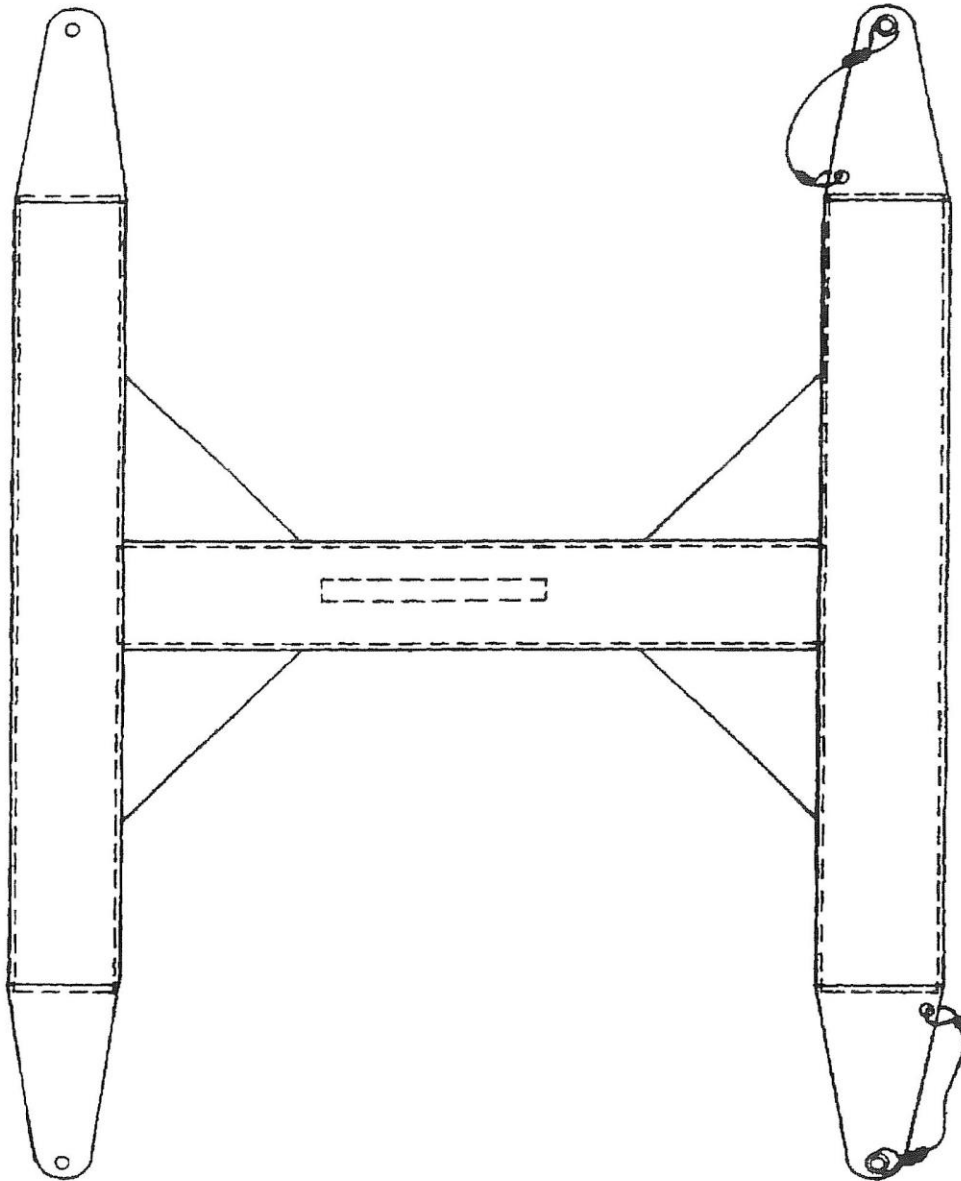


Figure 3-8. Scissor Support Bracket part No. 8140552-10

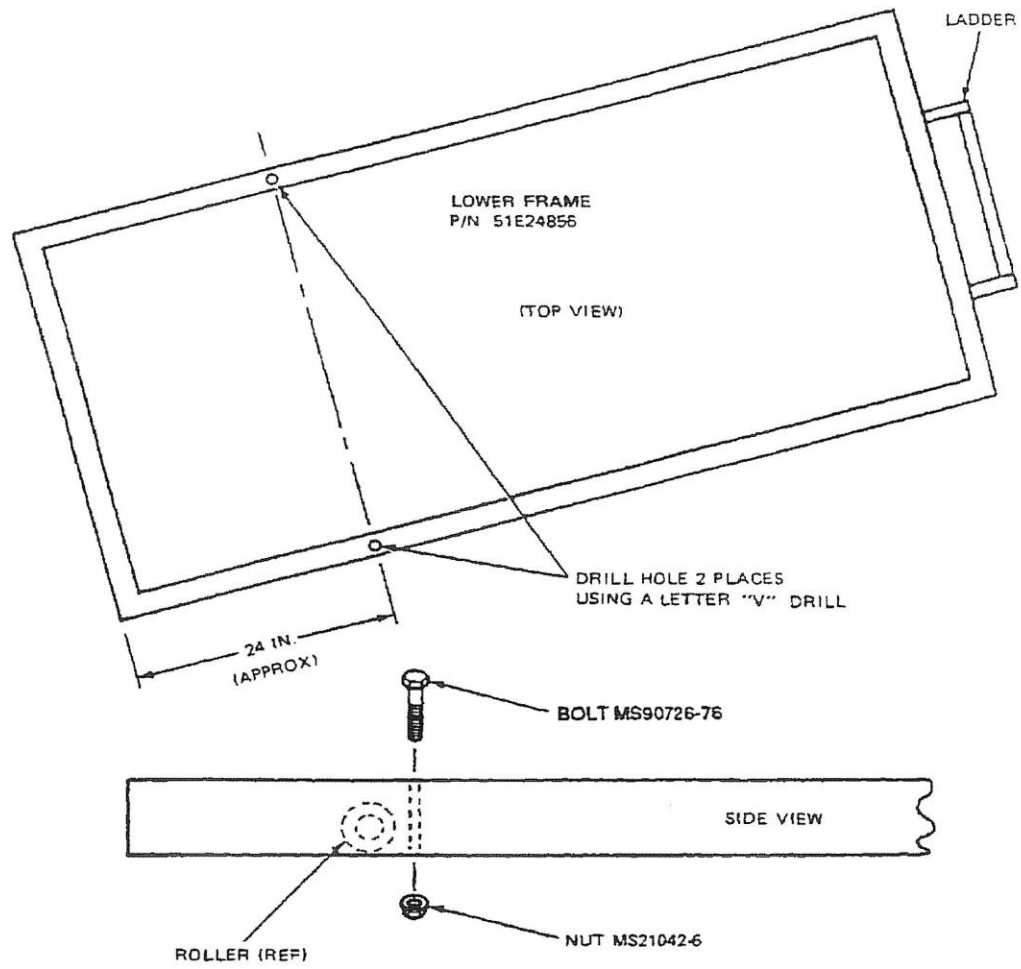


Figure 3-9. Installation of Platform Height Stop Bolt

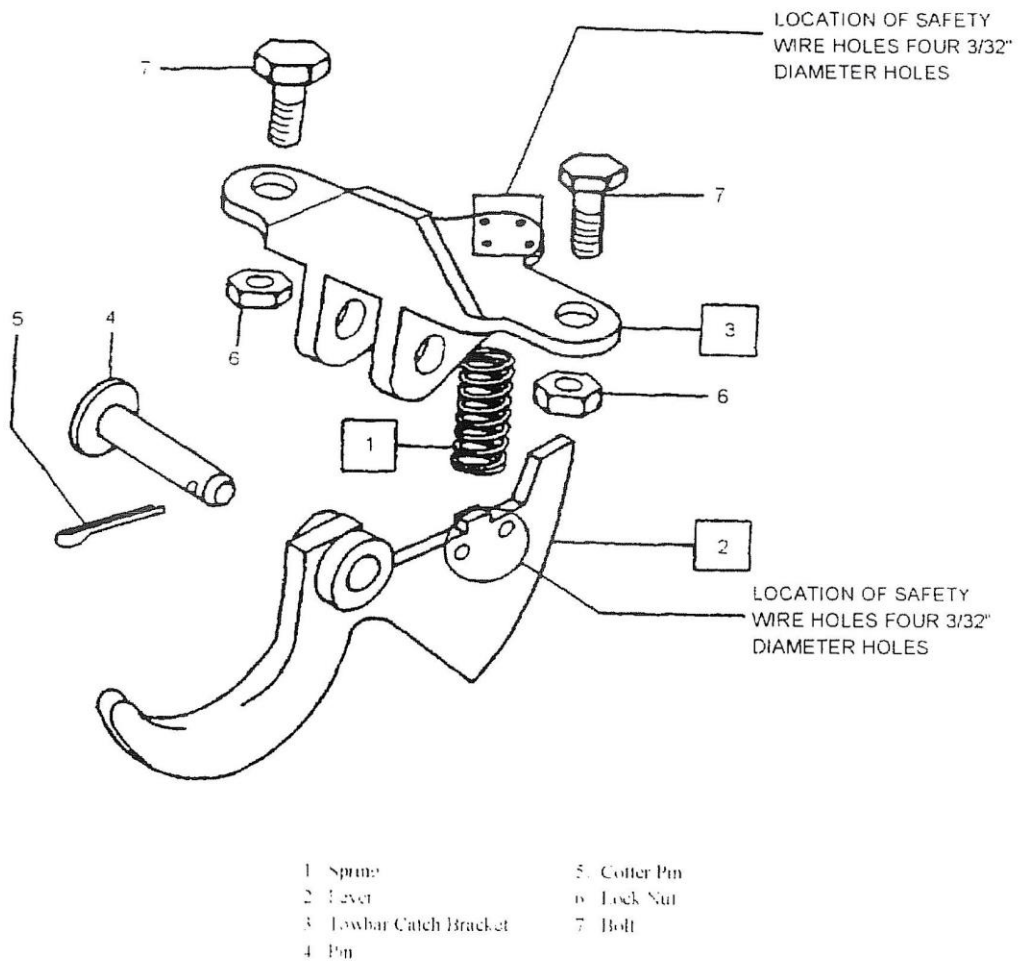


Figure 3-10. Towbar Catch Assembly

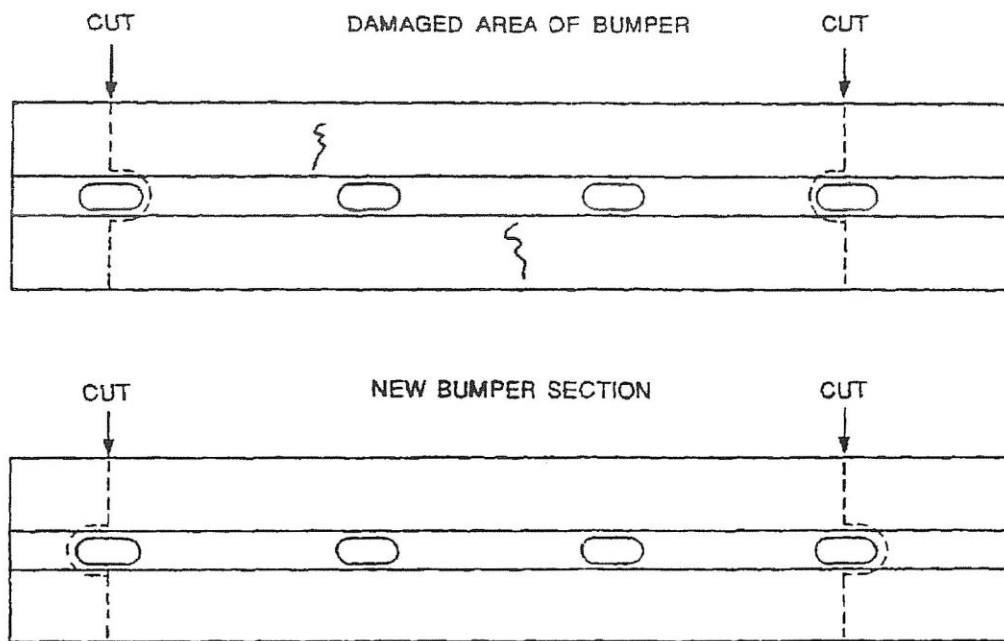


Figure 3-11. Damaged Bumper Pad Section Replacement