

SECTION 01

OPERATING INSTRUCTIONS

OPERATING INSTRUCTIONS ASPEN AERIALS BRIDGE ACCESS UNIT

Model A62T
Danfoss DP 700

07/2018

NOTE

AN OPERATOR MANUAL, MAINTENANCE MANUAL AND MANUAL OF RESPONSIBILITY ANSI 92.8 MUST BE KEPT IN A WATERTIGHT CONTAINER WITH THE UNIT AT ALL TIMES.

OPERATORS OF THIS EQUIPMENT SHOULD COMPLETE A COMPREHENSIVE TRAINING PROGRAM AND FULLY UNDERSTAND THE CONTENTS OF THIS MANUAL BEFORE ASSIGNMENT. THIS UNIT SHOULD ONLY BE OPERATED BY TRAINED PERSONNEL. FAILURE TO FOLLOW THE PROPER OPERATING PROCEDURES CAN CAUSE DAMAGE TO THE UNIT, OR SERIOUS INJURY INCLUDING DEATH.

ALWAYS PERFORM A PRE-START INSPECTION BEFORE USING THIS UNIT.

This manual has been prepared in accordance with ANSI A92.8 2012, American National Standards for Vehicle-Mounted Bridge Inspection and Maintenance Devices. To obtain a copy of these standards, contact the Scaffold Industry Association, Inc. 2001 East Campbell Avenue, Ste. 101, Phoenix, AX 85016 Telephone: (602) 257-1144 / Fax: (602) 257-1166, e-mail: sia@scaffold.org / web: www.scaffold.org

Table of Contents

Description		Page
Training		**4**
	Foreword	
	Crew Training	
	Operator Orientation	
Notice to Operators		**5-7**
	Safety Procedures	
Pre-start Inspection Checklist		**8-11**
Unit Controls		**13-21**
Operation		**22-43**
	Preview of Operations	
	Pre-start Checklist	
	Passenger Side Use, Deployment	
	Passenger Side Use, Stowing	
	Drivers Side Use, Deployment	
	Drivers Side Use, Stowing	
	Operation of the Auxiliary Engine (110 Volt Power / Hydraulic Backup)	
	Air Compressor	
	System Override	
	Automatic Platform Leveling	
	Solutions for Function Stoppages	
	Radio Controls	
	Moving the truck	

Training

Foreword

A bridge-access machine has many features and functions. Certain boom movements are mechanically restricted, for structural and stability reasons. Boom deployment must follow a prescribed flight pattern, not only to achieve the most effective positioning, but also to prevent damage to the unit.

For these reasons, it is necessary for the operator to study the procedures set forth in this manual and be attentive during operation of the unit. The operator should know the various boom articulation limits, and know how to properly resume operation if a limit device is tripped. A skilled operator can maneuver the machine into and under highly complex bridge structures with complete safety. An unskilled operator will be unable to obtain full usefulness of the machine and risks harming the equipment or others through misuse.

Crew Training

Safe operation of bridge access machines requires attention to several factors, of which all are of equal importance. A comprehensive training program will include these topics:

- Thorough operator orientation.
- Inspection and care of the bridge access machine.
- Knowledge of the operating limits and safety stops built into the machine.

A number of accidents with equipment such as this involve misuse by the operator. Taking “short-cuts” with procedures or attempting to use the equipment in a manner it was never designed for, account for many personnel injuries. Probably the single most important safety element is the operator’s decision to work within the “rules.”

Operator Orientation

No person should be permitted to operate a bridge access machine without first having been trained in its use. Training must be systematic and thorough. The training should include these points:

1. Read, and be familiar with the contents of the Operation and Maintenance Manual.
2. Know the location and function of all the controls on the unit.
3. Know and observe the posted capacity of the unit. Read the Danger, Warning, and Caution labels that pertain to the various operating modes and conditions.
4. Know how to conduct a thorough pre-start inspection of the unit and what to look for at each checkpoint.
5. Know the operational sequence of the unit, axle locks, and flight pattern.

An individual who has been trained on one brand of equipment is not qualified to operate other bridge access machines. Machines from other manufacturers vary as to capacity, operating characteristics, and safe handling procedures.

Training should be conducted with the entire crew that operates the unit. By learning the operational aspects of the equipment together, they will function as a safer group. This becomes particularly important in the event of an emergency. A crew that has been trained together will be able to react faster and with more cooperation. Even though emergencies may never occur, the crew that has reviewed their procedures together will be best equipped to cope with all situations.

Do not minimize the importance of operator training. A good training program will result in less equipment downtime, and more importantly, will help prevent serious or fatal injuries to personnel.

Personnel who are in training to become unit operators should only run the equipment under the supervision of a qualified, seasoned operator. Check with your supervisor or training personnel for any additional employer requirements.

NOTICE TO OPERATORS

IMPORTANT! THIS UNIT IS A COMPLICATED DEVICE THAT REQUIRES SKILL AND ALERTNESS FROM THE OPERATORS IN ORDER TO OBTAIN THE MAXIMUM USEFULNESS FROM THIS MACHINE. TO OPERATE THIS MACHINE YOU MUST BE TRAINED IN SAFE AND PROPER OPERATING PROCEDURES.

WARNING!  THIS UNIT IS EQUIPPED WITH TWO LIMIT SYSTEM OVERRIDE FEATURES. THEY ARE TO BE USED TO RETRIEVE BOOMS AND PERSONNEL FROM UNDER THE BRIDGE IN **AN EMERGENCY SITUATION ONLY. NEVER MOVE BOOMS & TURNTABLES OUTSIDE THE NORMAL FLIGHT PATTERN UNDER ANY CIRCUMSTANCE!** WHEN THE OVERRIDES ARE USED THE UNITS LIMIT SYSTEM IS DISABLED. INSTABILITY OF UNIT AND OVERLOADING OF COMPONENTS CAN OCCUR FROM IMPROPER USE OF THE OVERRIDE SYSTEM.

WARNING!  THIS UNIT IS NOT INSULATED! DO NOT EXCEED THE MINIMUM SAFE APPROACH DISTANCE TO ENERGIZED POWER LINES AND PARTS AS STATED IN THE "AMERICAN NATIONAL STANDARDS INSTITUTE" STANDARD FOR "VEHICLE-MOUNTED BRIDGE INSPECTION AND MAINTENANCE DEVICES" (ANSI/SIA A92.8).

CAUTION! THIS UNIT IS EQUIPPED WITH A TILT ALARM

1. MAXIMUM WORKING GRADE FOR THIS MACHINE IS +/- 5%

2. MAXIMUM WORKING SIDE ELEVATION FOR THIS MACHINE IS 8%

3. TILT ALARM WILL SOUND IF AN EXCESSIVE GRADE OR ELEVATION IS PRESENT.
   - IF THE ALARM SOUNDS DURING OPERATION, REVERSE THE DIRECTION OF THE PREVIOUS MOVEMENT.

- **IF THE ALARM IS SOUNDING BEFORE DEPLOYING THE UNIT, THE UNIT CANNOT BE OPERATED AT THAT POSITION ON THE BRIDGE**

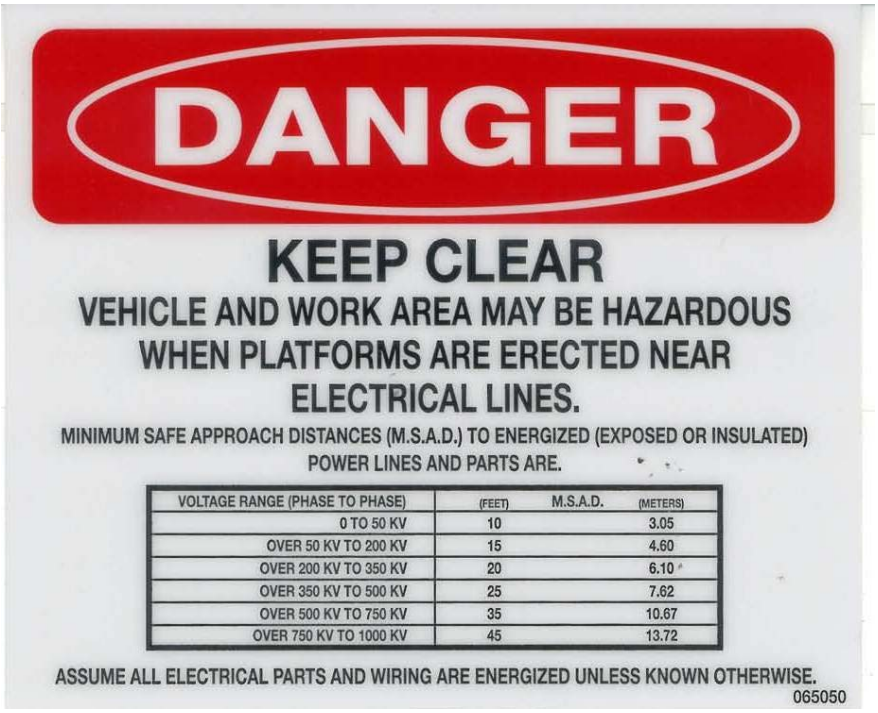
NOTICE TO OPERATORS

- The operator shall comply with the **Requirement for Operators** set forth in the ANSI/A92.8 Manual of Responsibilities.
- Training and retraining will be done in accordance with the requirements set forth in the ANSI/A92.8 Manual of Responsibilities.
- The operator shall ensure that the current Responsibilities, Operators and Service
- Manuals are stored in a weather resistant storage location, on the unit.
- A "PRE-START INSPECTION" of this unit shall be performed before use each day or at the beginning of each shift. A "PRE-START INSPECTION CHECKLIST" must be used during this process.
- Prior to use and during operation, the operator shall check the surrounding area for operating and limitation conditions, including potential hazards.
- The operator shall follow all special worksite rules, provided by the organization having jurisdiction over the project.
- The operator shall read and understand the manufacturer's operating instructions and understand all labels, warnings and instructions displayed on the unit.
- Occupants of the unit wear appropriate personal safety equipment.
- A personal fall protection system must be used when operating this unit.
- The operator shall ensure that the surface upon which the unit is to be used, is capable of sustaining the load(s) imposed under all configurations the unit can attain.
- Operators shall maintain the appropriate minimum approach distance (MAD) from energized power lines and parts.

- Personnel shall maintain a firm footing on the platform floor. The use of planks, ladders or any other unauthorized devices in the platform for achieving additional height or reach is prohibited.
- The operator shall immediately contact their supervisor for guidance and assistance when they encounter any suspected or actual unit malfunctions(s).
- Hazardous or potentially unsafe conditions(s) relating to capacity, intended use, or safe operation of the unit.
- The operators shall immediately stop operation of the unit until corrective action has been taken or appropriate information received.
- The operator shall immediately report to their supervisor any potentially hazardous conditions which become evident during operation. Problems that might affect the safety of the operator shall be resolved prior to continued use.
- The rated workload of the unit shall not be exceeded.
- The operator shall ensure the area surrounding the unit is clear of personnel and equipment before deploying or stowing the unit.

NOTICE TO OPERATORS

- The operator shall not alter, modify, or disable interlocks or other safety devices.
- Modification or alterations of the units systems or structure is not permitted.
- Boarding of the platform shall be from the support surface.
- The unit shall not be used as a crane.
- The operator shall ensure that tools, materials, and personnel are within the load limitation of the platform before deploying. (600 lb)
- The minimum crew shall consist of two qualified operators. When the platform is deployed in an operating position, at least one qualified operator, knowledgeable in procedures for the retrieval of personnel and/or the platform, shall be on the support structure at all times.
- The operator shall not permit **"anyone"** to operate this unit without proper training.
- Do not operate this unit without properly performing the recommended scheduled maintenance and inspections as stated in the manufacturer's service manual.
- Do not let any part of this unit come in contact with the bridge structure.
- Do not operate this unit in winds exceeding 35 miles per hour (56 KM/H).
- Do not transport this unit unless the axlelocks are disengaged, PTO is off and all components are secured for travel.
- If a function (booms or turrets) stops working, you have probably reached a limit that keeps the machine within a safe flight pattern. It may be necessary to reverse that function to regain movement.
- Work zone (traffic control) policies and procedures are the responsibility of the end user.
- A fall protection program must be maintained as set forth by local, state and federal law and must be followed when operating this unit.



BRIDGE ACCESS UNIT PRE-START INSPECTION

INSPECTION DATE: _____
INSPECTION PERFORMED BY: _____
OPERATORS: _____, _____
COMMENTS: _____

MAIN ENGINE COMPARTMENT:	**OK**	**COMMENT**
Engine oil:		
Coolant:		
Washer fluid:		
Power Steering fluid:		
Transmission fluid:		
PTO & hydraulic pump:		
Drive belts:		
Axle Lock switches and structure		

CAB INSPECTION:	**OK**	**COMMENT**
Hour meter / odometer reading:		
Decals:		
Air pressure:		
Air filter indicator:		
Oil pressure:		
12 volt charging system:		
Braking system:		
Unit power light & switch:		
PTO indicator light and system:		
Two speed system:		
Axle lock lights:		
Strobe lights:		
Start/stop system: (Transmission in neutral)		
Tag axle system & pressure (if installed):		
Intercom system:		
Lights: 4 ways, head, turn, tail:		
Fuel level:		
Horn:		

- TRUCK MUST BE IN NETURAL AND THE PARKING BRAKE ENGAGED.

- START THE TRUCK ENGINE, ENGAGE THE PTO, SET THE ENGINE TO THE CORRECT RPM SETTING, AND TURN ON ALL SYSTEMS FOR THE WALK AROUND INSPECTION.

- CHECK UNDER THE TRUCK FOR ANY FLUID LEAKS.

Unit Inspection

***WALK AROUND INSPECTION*: (proceed around the unit in a CW direction)**

	OK	COMMENT
Lights: 4 ways, head, turn, tail:		
Strobes, beacons or sign board:		
Transmission:		
Axles and suspension (front/rear):		
Tires (front/ rear):		Note – check pressure once a week!
Axle lock structure (front/rear):		
Axle lock switches (front/rear):		
Hydraulic pump & hoses:		
Electrical switches & cables:		
Air hoses, outlets:		
Body boxes:		
Ladders and rails:		
Counterweights & switches:		Note – lubricate hydraulic diverter valves once a week!
Brakes (slack adjusters)		
Drive line:		

AUXILIARY ENGINE:	OK	COMMENT
Hour meter:		
Fuel filter, oil level & oil press:		
Coolant:		
Switches, wires, connections:		
Hydraulic pump & hoses:		

GENERATOR:	OK	COMMENT
Operation test: (perform at T1)		
Electrical wires & connections:		
Circuit breakers and outlets:		
Instrument panel and meters:		

HYD. TANK & OIL COOLER:	OK	COMMENT
Oil level and gauge:		
Filter and gauge:		
Structure:		
Hydraulic hoses:		
Electrical switches & cables:		

AIR COMPRESSOR:	OK	COMMENT
Operation test: (perform at T1)		
Air system hoses & valves:		
Electrical switches & cables:		
Gauges:		

Unit Inspection

COMPONENT CHECKLIST:

***See component checklist:**	T-1	B-1	T-2	B-2	B-3	B-3 Ext	B-4	PLAT-FORM
1. Cylinder and Actuators	////////							
2. Cylinder Anchor								
3. Structure								
4. Hydraulic Lines & Fittings								
5. Electrical Cables								
6. Pivot Pin								
7. Rotations: Gear, Bearing, Gearbox, Motor		/////// ///////		//////// ////////	//////// ////////	////////		
8. Limit/Prox/Angle Switches		///////				////////		
9. Pressure Filter		///////	////////	////////	////////	////////		///////////
10. Hydraulic Valves; Unit, Axle lock, Pltfm. Leveling		/////// ///////	//////// ////////	//////// ////////	//////// ////////	//////// /////		///////////
11. Boom/Platform Rests		///////	////////	////////		////////		
12. Boom /Platform Tie-down	///////	///////	////////			///////		///////////
13. Decals						///////		
14. Platform Heaters	///////	///////	///////	////////	////////	////////		
15. Outlets; 12 volt, 110 volt	///////	///////	///////	////////	////////	///////		
16. Air Hose Outlet	///////	///////	///////	////////	////////	////////		
17. Platform Controls	///////	///////	///////	////////	////////	////////		
18. Leveling System	///////	///////		////////	////////	/////		

(Shaded boxes don't apply to that area of the unit) Note – lubricate/protect cylinder shafts once a week!

COMPONENT CHECK LIST EXPLANATIONS:

COMPONENT:	WHAT TO LOOK FOR
1. Cylinder	leaks, scoring, rust pitting, cracks at pivot points
2. Cylinder Anchor	visible cracks or damage, rusting
3. Structure	visible cracks or damage, rusting
4. Hydraulic Lines & Fittings	oil leaks, chaffing, kinks, abrasions
5. Electrical Cables	loose or broken wires and connections, chaffing, abrasions
6. Pivot Pin	visible cracks or damage, rusting
7. Rotation: Gear, Bearing, Gearbox, Motor (T-1 and T-2)	wear, damage, oil leaks, broken bolts
8. Limit/Prox/Angle Switches	bent switch arms, loose wire connections, LED functions
9. Pressure Filter	oil leaks, check the indicator gauge
10. Hydraulic Valves; Unit, Axlelock, Dump	free movement of the handles, return to neutral position when released, oil leaks, wiring connections secure, LED functions
11. Boom and Platform Rests	nylon wear pad secure, cracks, damage to structure
12. Boom Tie-down Device	damage to nylon strap or ratchet
13. Decals	unreadable, missing or damaged decals
14. Platform Heaters	broken switches or wires, secured to platform, operational
15. Outlets; 12 volt, 110 volt	damaged or broken, wiring, secure to platform, operational
16. Air Hose Outlet	damage to hoses, coupling, regulator, and gauge
17. Platform Controls	proper operation of all functions, damage to components
18. Leveling System	hydraulic line; wire or switch; secure to T2 / platform

Unit Inspection

OPERATIONS CHECK AND COUNTER BALANCE VALVE TEST:

THIS OPERATIONS CHECK "MUST" BE PERFORMED PRIOR TO OPERATING THE UNIT.
Truck in neutral, parking brake set, truck running, unit power on, PTO engaged and truck engine selected to the high idle. "Working at the T-1 Location"

1. Place the radio control transmitter into the cradle at turntable one. (Labeled Ground Radio)
2. Remove the boom tie down device.
3. Test the truck 2-speed system (leave in high setting).

4. At Plus-1 Monitor: (see plus-1 manual for in-depth information)
   - MAIN MENU – select button #1, for the "AXLE LOCKS/CTWT" screen.
   - At "AXLE LOCKS/CTWT" screen –
     - Select "AXLE LOCK ON" by pressing button #5 (Note: the footswitch must be depressed to engage or disengage the axle locks).
     - Engage axle locks and sliding counterweight by choosing left or right side operation buttons.
     - Select "UNIT ON" by pressing button #5.
     - Return to "MAIN MENU" press "X" button.
   - MAIN MENU – select button #3, for the "CONTROL SYSTEM" screen.
   - CONTROL SYSTEM – select button #1 "GROUND CONTROL".
   - Return to "MAIN MENU" press "X" button.
   - MAIN MENU – select button #4, for "ACCESSORIES" screen
     - Select "AIR COMPRESSOR" by pressing button #1. This will test the compressor. (If Equipped)
     - Select again "AIR COMPRESSOR" by pressing button #1 to switch off the air compressor.
     - Return to "MAIN MENU" press "X" button.

<u>Note – make sure that the Boom leveling is controlled only by the joystick on the ground or platform control.</u>.

5. Depress the footswitch and Close Boom-2 and Boom-3 completely.
6. Depress the footswitch then raise Boom-1and bring Boom Level "In" until booms are approx. 8" above the boom rests.
7. Lower Boom-4 approximately 45 degrees.

8. At Plus-1 Monitor:
   - MAIN MENU – select button #3, for the "PLATFORM LEVELING" screen.
   - At "PLATFORM LEVELING" screen –
     - Select "MANUAL" control by pressing button #1.
     - While depressing the footswitch Select "PLATFORM UN-STOW" by pressing button #6. Allow platform to operate to a level position.

9. Set the truck engine 2-speed to the low setting.
10. Test the truck engine stop system (red button). Leave truck engine off, reset engine stop system. Later the auxiliary engine will be used to stow the unit (item 15).

11. NOW OPEN THE VALVE ACCESS DOOR TO PERFORM COUNTER BALANCE VALVE TESTS
    - *Operate Boom-1 to the "DOWN" Hold handle for five seconds.
    - *Operate Boom-2 to the "OPEN" Hold handle for five seconds.
    - *Operate Boom/Walkway-3 to the "OPEN" Hold handle for five seconds.
    - *Operate Boom-4 to the "DOWN" Hold handle for five seconds.
    - *Operate Boom Leveling to the "IN" Hold handle for five seconds.
    - *Operate the platform leveling to the "UNSTOW" Hold handle for five seconds.

WARNING: IF ANY ONE OF THE BOOMS MOVES DURING THUS TEST, THE DEFECT MUST BE CORRECTED BEFORE THE MACHINE CAN BE USED.

Start the auxiliary engine (It will be used to stow the unit).

12. Place the backup power/generator switch to "Backup Power" to provide hydraulic power.
13. At "PLATFORM LEVELING" screen –
    - While depressing the footswitch Select "PLATFORM STOW" by pressing button #2. Allow platform to operate to a fully stowed position.
    - Return to "MAIN MENU" press "ESC" button.
14. Raise Boom-4 and place the platform in the stowed position.
15. Lower Boom-1 and bring BOOM LEVELING OUT "CCW" to bring the booms into the rests.
    Boom should enter the rests simultaneously.
    At Plus-1 Monitor:
    - MAIN MENU – select button #1, for the "AXLE LOCKS/CTWT" screen.
    - At "COUNTERWEIGHT" screen –
        - Select "AXLE LOCK ON" by pressing button #5.
        - Disengage axle locks and sliding counterweight by choosing "RETURN FROM" left or right side operation buttons (Note: the footswitch must be depressed to engage or disengage the axle locks).
        - Return to "MAIN MENU" press "X" button.
16. Place the backup power/generator switch to "Generator" position to provide 110 volt power.
17. Test the 110v AC power system by operating the platform heaters.
18. Test the engine stop system (button) at the "Platform" to shut down the auxiliary engine. Leave auxiliary engine off, reset engine kill system and turn off the auxiliary engine key.
19. Test the Turret-1, cab station, and platform intercoms (then turn them off).
20. Install the boom tie down device.
21. Shut down all unit systems at all locations including; PTO, Unit Power and intercom system.

NOTE: Any defects or issues found during the operational checks must be corrected before unit is placed into service.

POWER INTERRUPTION – If the unit power is shutoff while the unit is deployed, the radio controls and platform automatic leveling default to off. The operator at the ground station (Turret-1) must go to the Plus-1 Monitor and turn on the Radio Control that was being used and Automatic Platform leveling.

Unit Controls

Controls in the Cab



CAB STATION

Unit Power switch – Provides power to the bridge access machine's electrical systems.

P.T.O. switch – Engages & disengages the power take-off for the hydraulic pump.

P.T.O. indicator light – Illuminates when the P.T.O. is engaged.

Engine Stop switch – Stops the truck and auxiliary engine.

Strobe light switch – Turns on unit's strobe light system. (Optional)

Two Speed – Used to advance the truck to high idle

Unit Controls

Cab Controls (cont.)

Spare switches – 20 amp, Utilized for customer specific options.

Axle lock indicator lights – Shows condition of axle locks. Green - shows fully disengaged, vehicle ready to drive. Red - shows fully engaged, booms may be deployed over side of bridge.

Engine Stop indicator light – Illuminates when Engine Kill system is engaged.

Hour Meter – Displays the operational hours of the PTO pump.

Lift Axle Regulator / control (if installed) – Located outside of cab on driver side or in the cab next to the drivers seat. The Device has an adjustable pressure setting, and a switch to raise or lower the tag.

Intercom Station (cab) – Allows communication with intercoms installed at T1 and the Platform. Note, there is an intercom switch on the cab switch panel that turns the intercom system on and off. Turn switch off for road travel.

General statement about the control system

The Aspen Aerials A62TR machine is designed to inspect and maintain bridges. The machine consists of four boom arms, two rotating turrets, and a platform. All are controlled by joysticks and push buttons on the two "Radio Transmitters". Primary use of this machine will be from the Platform Control to navigate under the bridge structure, but the Ground Control station is the MASTER. The Ground Control station (Turret-1 "T1") is where the controls are turned on or off. Only one controller can be turned ON at a time.

The axle locks and sliding counterweight systems are operated using the Plus-1 Monitor operator interface unit located at the Ground Control station.

The axle locks and sliding counterweight system will operate **only with the booms and turrets in their stowed positions**.

The turrets and booms can be operated from either Radio Transmitter (whichever is selected) **only if the axle locks and sliding counterweight are fully engaged**.

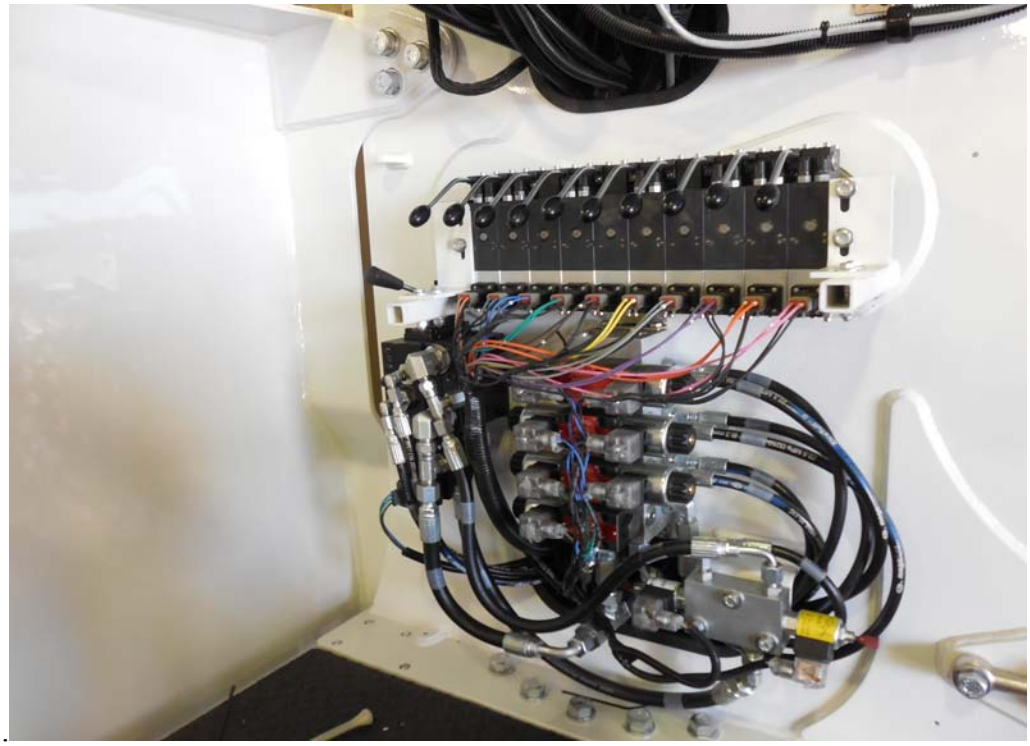
All boom functions may be operated simultaneously.

POWER INTERRUPTION – If the unit power is shutoff while the unit is deployed, the radio controls and platform automatic leveling default to OFF. The operator at the ground station (Turret-1) must go to the Plus-1 Monitor and turn on the Radio Transmitter that was being used and Automatic Platform leveling.

Unit Controls



GROUND CONTROL STATION



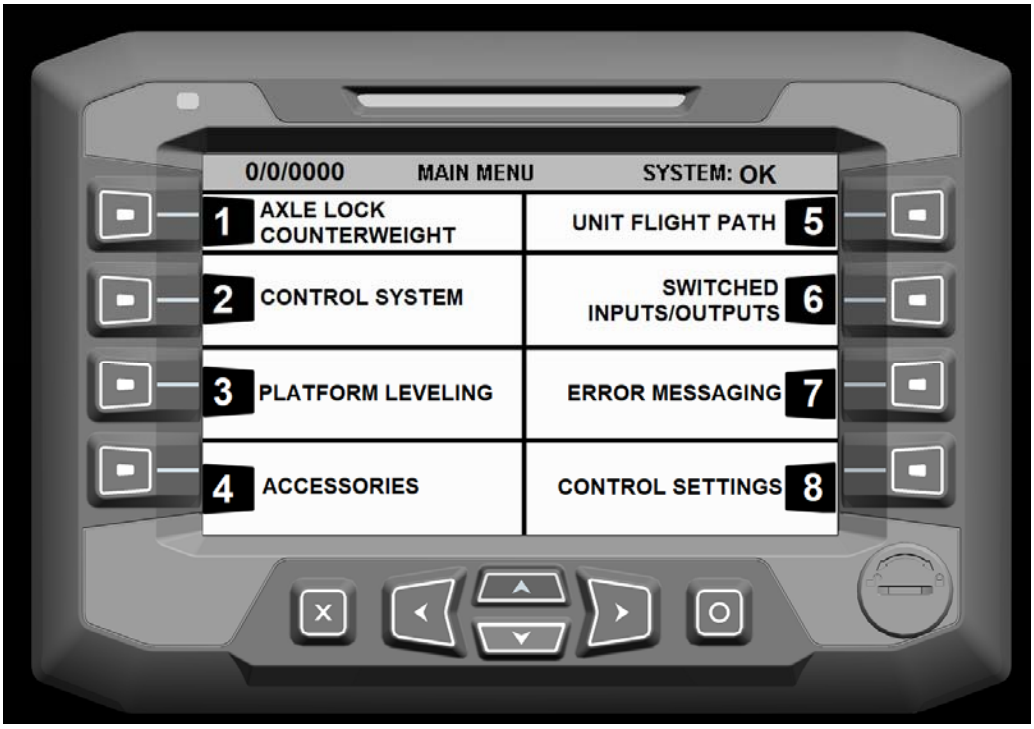
MAIN CONTROL VALVE TURRET 1

Sauer-Danfoss Plus-1 Monitor Operator Interface
When power is initially turned on, this screen will be displayed.



c

Press the OK button on the Plus-1 Monitor and the monitor defaults to the MAIN MENU. You will then be able to navigate to different screens by following the specific buttons.



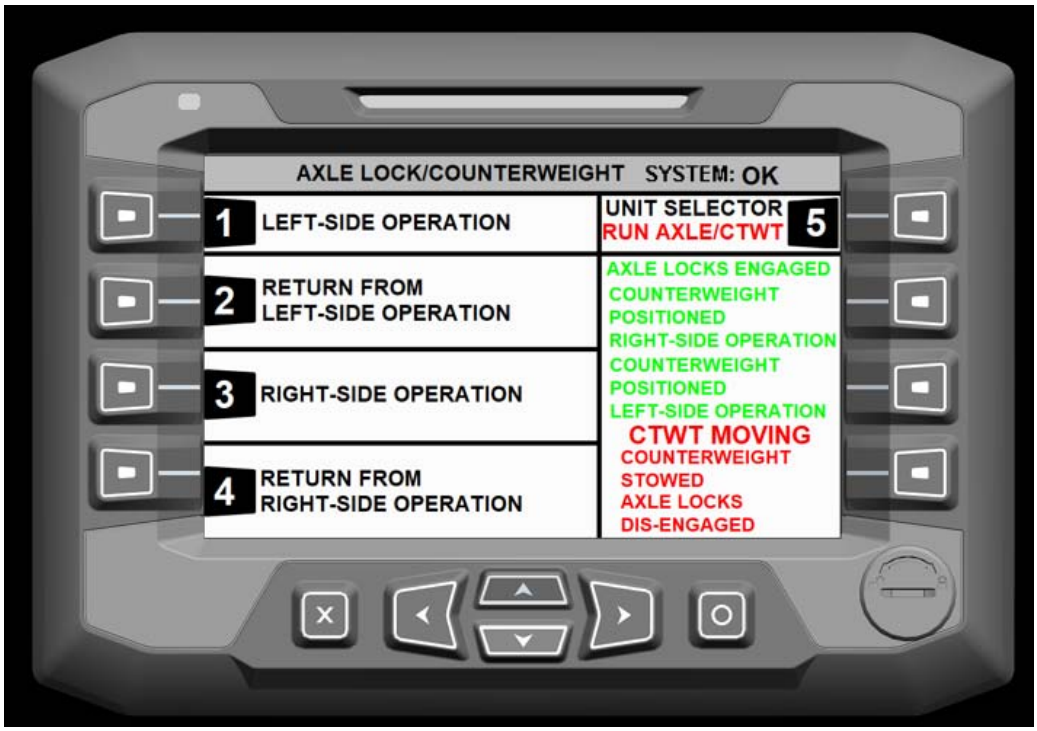
Pressing Button # 1 on the Plus-1 Monitor from the MAIN MENU screen takes you to the COUNTERWEIGHT SCREEN. From there you can engage or disengage your axle locks and set the counterweight simultaneously. Depending on which side you want to deploy the booms.

Pressing Button #5 selects between axle lock and unit on.

Pressing Button #1 or #3 will engage the axle locks and sliding counterweight.

Pressing Button #2 or #4 will disengage the sliding counterweight and axle locks.

(Note: the footswitch must be depressed to engage or disengage the axle locks).



As you depress and hold button #3 (illustration) the display will read engaging axle locks in RED flashing text. Then you will see counterweight deploying in flashing text. Once engaged and deployed the screen will read

AXLE LOCKS ENGAGED COUNTERWEIGHT DEPLOYED FOR RIGHT SIDE OPERATION

In green solid text.

Sauer-Danfoss Plus-1 Monitor operator interface – Allows the operator to:

- Engage or disengage the axle locks and sliding counterweight system
- Monitor the Flight path Rules in Real Time or Complete format.
- Control Platform leveling functions.
- Turn on or off any Accessories.
- Monitor the Digital Inputs/Outputs.
- Check any Error Messages.
- Adjust Control Settings.

Other controls at Turntable One console.

Engine Stop button – Stops the truck and auxiliary engine.

Ground controller.

The two controllers are labeled Ground and Platform for appropriate use.



Lever (joystick) functions

Boom1 control lever - Raises or lowers Boom-1. Also, if Turret-2 becomes out of level more than 8 degrees, Boom-1 will stop going up or down until the Boom level is corrected.

Turret-1 control lever - Rotates entire boom assembly in either a CW or CCW direction.

Boom-2 control lever - Opens or closes Boom-2.

Turret-2 control lever - Rotates the 2nd and 3rd booms in either a CW or CCW direction.

Boom #3 control lever - Opens or closes boom #3.

Boom #3 extension control lever - Extends or retracts the 3rd boom telescoping section.

Boom-4 control lever - Raises or lowers Boom-4.

Boom Leveling control lever – Extends or retracts the Boom Leveling Cylinder.

Unit Controls

Controller buttons and toggle switches



Boom-1 Telescope Switch – Controls Boom-1 telescope, Extend and Retract

Platform Rotate Switch – Controls platform rotation, CW or CCW

Boom-4 Telescope Switch – Controls Boom-4 telescope, Extend and Retract

Enable buttons (Black) – (3) total. Performs the same function as the foot switch when at the appropriate work station. Located on each side of controller and on top next to the display.

Start/Off Button – Used to turn the transmitter on and off. Round, quarter turn rotary switch, located on the right hand side of the controller.

Engage button (green) – Depress once to connect to the receiver, Button is located on the right-hand side of the controller.

LCD Display – Indicates wireless or tether connection, wireless signal strength, joystick in use, and Boom-3 and Turret-1 stowed position.

Power LED – Indicates when the controller is on (blinking)

Unit Controls

Low Battery LED – Indicates when the batteries are low

Controller Push Stop Button (red) – Depress to shut off the controller's signal only.

 **THIS BUTTON IS NOT AN ENGINE STOP BUTTON !**

<u>Controller start procedure</u> (Ground and platform)

- At the T-1 display, selected button 2 (Control System) and select either Ground Control or Platform Control.
- At the controller, turn the black rotary knob one quarter turn clockwise
- The transmitter will sound twice
- Push the green engage button once and the controller should connect.
- Observe the display to verify a connection.

Other Controls at T-1



Intercom station - Switch for turning intercom system on/off is in the cab. Volume control and the push to talk button are located on the intercom..

Auxiliary Engine Panel – Allows preheating and operation of the auxiliary engine. (Located on the electrical enclosure)

Back-up Power Switch – Turns on 120 volt AC power from the diesel generator.



Platform control station

PLATFORM CONTROLS

Radio Transmitter – Operates in the same manner as the Ground Transmitter. Connect tether cable to transmitter for wired operation. When plugged in, the transmitter receives it power from the chassis 12-volt system.

Controls activation footswitch - When activated, will enable controls.

Engine Stop button - Stops the truck and auxiliary engine.

120 Volt outlets – Provides 20 amp, 120 Volt AC Power (Generator must be on)

12 Volt Outlets – Provides 15 amp, 12 Volt power – Used to power platform LED Work Lamps or other 12-volt accessories.

Heaters – 1500 Watt 120 volt Ac heaters – Used to provide heat during cold weather operations.

Lanyard Tie offs – Connect lanyard for the safety harness (3) total

Preview of Operations

The following series of diagrams and pictures are intended to familiarize the reader with the various controls, features, and operating positions of the bridge access machine. ***However, do not attempt to operate the unit merely by referring to these photos.*** Use the step-by-step operating procedures and refer to the photos simply for supplemental information.

Due to optional and custom features, your machine may be slightly different than the unit shown here. Familiarize yourself with your unit by comparing these photographs to your bridge access machine.

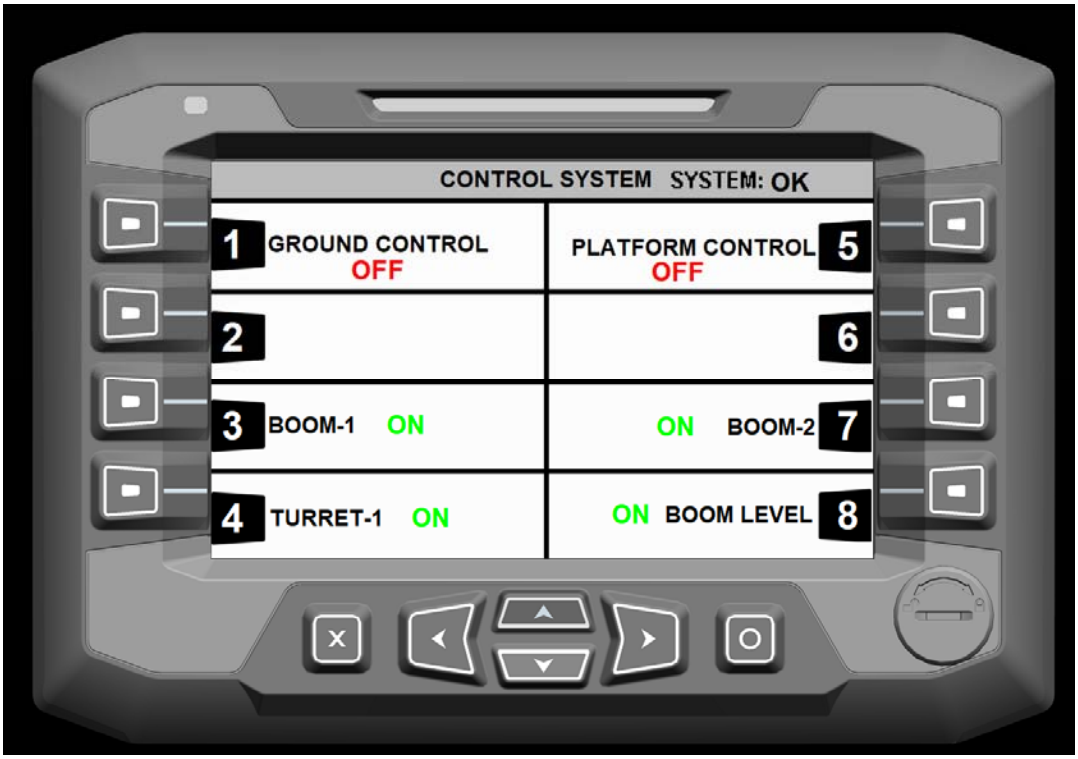
Study the sequence of pictures showing the bridge access machine in progressive steps of operation ending with the unit fully in place under the bridge. These pictures are intended to convey the “out - down - under” boom configuration which is the key to reaching locations under the bridge.



UNIT IS PARKED AT THE BRIDGE SITE, AXLE LOCKS ARE ENGAGED AND SLIDING COUNTERWEIGHT IS EXTENDED.



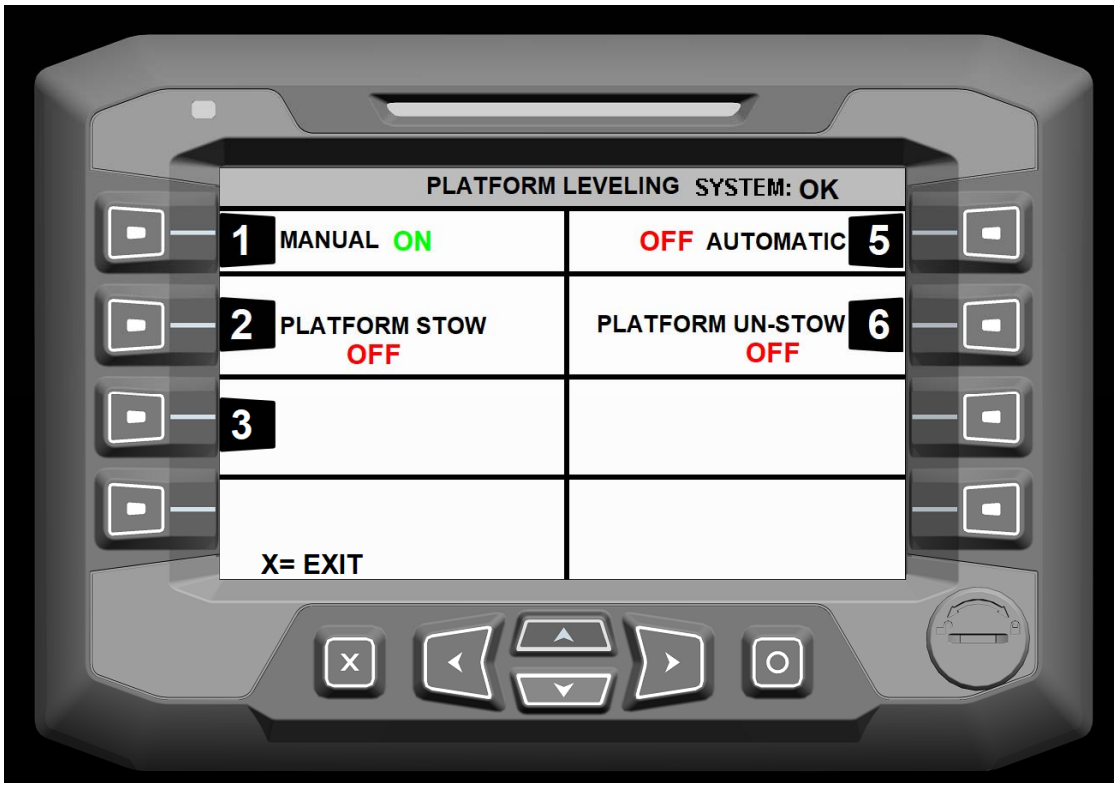
RELEASE THE BOOM TIE DOWN DEVICE



TURN ON THE GROUND RADIO CONTROLLER AND RAISE BOOM-1 WHILE RUNNING BOOM LEVELING-IN UNTIL BOOM ASSEMBLY IS APPROXIMATELY 12" ABOVE THE RESTS.



LOWER THE PLATFORM RESTS



LOWER THE BOOM-4 TO A HORIZONTAL POSITION.
LEVEL (UN-STOW) THE PLATFORM USING THE PLUS-1 OPERATOR INTERFACE



BOOM-4 IS LOWERED AND EXTENDED. ENTER THE PLATFORM FROM THE BRIDGE SURFACE

Operation



FROM THE PLATFORM, BOOM-4 IS RAISED TO A POSITION SLIGHTLY HIGHER THAN THE BOTTOM OF BOOM-3



BOOM-1 HAS BEEN RAISED SUFFICIENTLY FOR THE BOOM ASSEMBLY TO CLEAR THE BOOM RESTS. NOTE, BOOM LEVELING WILL HAVE TO BE OPERATED THE SAME TIME AS BOOM-1 TO MAINTAIN LEVEL BOOM ASSEMBLIES. BEGIN ROTATING TURRET-2 CW



TURRET-2 IS BEING ROTATED CW AND TURRET-1 IS ROTATED CCW. THIS WILL PLACE BOOM-1 PERPENDICULAR TO BRIDGE RAIL AND BOOMS-2 AND BOOM-3 PARALLEL TO THE BRIDGE RAIL



CONTINUE TO OPERATE TURNTABLE #1 AND TURNTABLE #2 UNTIL BOOM-1 IS FULLY PERPENDICULAR TO RAIL AND BOOM-2 AND BOOM-3 ARE PARALLEL TO BRIDGE RAIL



OPEN BOOM-2 AND BOOM-3



BOOM-2 AND BOOM-3 HAVE NOW BEEN OPERATED TO “OPEN” SUFFICIENTLY TO ENABLE PLATFORM TO BE POSITIONED UNDER THE BRIDGE DECK



TURRET-2 IS BEING ROTATED CW TO BRING BOOM-3 AND BOOM-4 TO THE DESIRED POSITION UNDER THE BRIDGE



TURRET-2 HAS BEEN ROTATED CW TO POSITION BOOM-3 UNDER THE BRIDGE. BOOM-3 HAS BEEN EXTENDED TO REACH WORK LOCATION. BOOM-4 MAY NOW BE RAISED, LOWERED (*UP OR DOWN*) OR EXTENDED AS DESIRED



BOOM-4 MAY NOW BE RAISED AND LOWERED *(UP OR DOWN)*.
PLATFORM MAY BE ROTATED *(CW OR CCW)*.



BOOM-4 MAY NOW BE TELESCOPED *(EXTEND OR RETRACT)*
AND PLATFORM ROTATED *(CW OR CCW)* TO ACCESS AREAS.



BOOMS MAY NOW BE MOVED INTO THE DESIRED POSITION



BOOM-3 & BOOM-4 ARE EXTENDED OUT ALONGSIDE OF THE BRIDGE.

Operation

Passenger Side Use DEPLOYMENT:

- At the truck cab location, set the truck parking brake.
- At the truck cab location, turn the ignition switch, unit power, and intercom ON.
- Select and engage the hydraulic power source, (Truck PTO or Auxiliary Engine).
- Engage engine 2 speed to run truck engine at high idle.
- At Turret-1 location, adjust the intercom volume.
- At Turret-1 location, Plus-1 Operator Interface press OK, then select the AXLE LOCK COUNTERWEIGHT mode (1).
- At Counterweight screen select AXLE LOCKS ON (5)
- Depress the Footswitch and hold the ACTIVATE AXLE LOCKS AND COUNTERWEIGHT FOR RIGHT SIDE OPERATION" (1) button until the axle locks and sliding counterweight are deployed.
- At Plus-1 Monitor: On COUNTERWEIGHT Screen Select UNIT ON (5)
- MAIN MENU – select button #2, for CONTROL SYSTEM screen.
- At CONTROL SYSTEM screen press GROUND CONTROL button #1.
- Turn on the ground controller as noted on page 20.
- At Turret-1 location, engage foot pedal and operate Boom-4 down.
- Remove the boom tie down device and lower the platform rests.
- At Turret-1 location, select "X" to return to the MAIN MENU screen. Select button 3, PLATFORM LEVELING, then MANUAL, and then PLATFORM UN-STOW until platform is level.
- Select AUTOMATIC.
- Select "X" to return to the MAIN MENU screen.
- At the Plus – 1 MAIN MENU select Button # 2 for CONTROL SYSTEMS, turn the Ground Controller Off and the Platform Controller ON.
- Turn on the intercom system in the cab and adjust the volume.
- Board the platform.
- Ensure Platform Radio controller is ON and press the radio green enable button.
- Operate Boom-4 Up so the platform is higher than the bottom of boom three, approximately 45 degrees above Boom-3 for visibility.
- Operate Boom-1 Up and Boom Leveling IN until the booms are about 12" inches above the rests.
- Operate Turret-2 CW to rotate Boom-2 and Boom-3 out to the side a few feet away from the cab of the truck.
- Operate Boom-11 to adjust the height of the boom assemblies to clear any obstructions.
- Adjust Boom Leveling as needed.
- Operate Turret-2 CW and Turret-1 CCW until Boom-1 is positioned 90 degrees to the bridge and Boom-2 and Boom-3 are parallel to the bridge.
- Boom-1 telescope can be used at any time.
- Operate Boom-2 and Boom-3 open until Boom-2 is vertical and Boom-3 is horizontal. Boom-3 and Boom-4 control may now be operated to provide clearance. The platform will automatically level as Boom-2, Boom-3 or Boom-4 are moved.
- Operate Turret-2 CW to rotate the platform under the bridge.
- The booms may now be rotated and Boom-4 extended as necessary to reach the desired location.
- Boom-3 and Boom-4 may be used to raise or lower the platform as desired.

Passenger Side Stowing:

- Retract Boom-3 and Boom-4 extensions.
- Operate Turret-2 CCW until Boom-2 and Boom-3 are parallel to the bridge.
- Operate Boom-2 and Boom-3 controls to **completely close both booms.**
- Operate Boom-4 to adjust for proper clearance.
- Operate Boom-1 to adjust for proper clearance. Adjust Boom Leveling as needed.
- Operate Turret-2 CCW and Turret-1 CW until the boom assembly is directly over the boom rests.
- Operate Boom-1 Down, and operate Boom Leveling Out to place the booms in their rests. Booms should be placed in their rests simultaneously.
- Adjust Boom-4 to provide safe exiting of the platform.
- Exit platform.
- At Turret-1 location, select X to return to the MAIN MENU screen.
- Select PLATFORM LEVELING, then MANUAL, and then PLATFORM STOW until platform is stowed.
- At Turret-1 location, Raise Boom-4 until boom stops.
- At turret-1 location, operate Boom-1 UP and Boom Leveling IN until booms are about 12 inches above rests.
- Lift and secure the platform rests.
- At Turret-1 location, operate Boom-1 Down and Boom Leveling Out to bring the boom assembly into the rests. Install boom tie down.
- Select X to return to the MAIN MENU screen.
- Select AXLE LOCK COUNTERWEIGHT screen.
- Hold the RETURN RIGHT SIDE OPERATION (1) button until the axle locks and sliding counterweight are fully disengaged. Function flashes red until fully disengaged and then is indicated in solid green.
- Go to the cab, shut down the Unit Power, PTO and Intercom systems.

WARNING! Do not operate Boom Leveling Out (Turret 2) when booms are stowed for any reason. Damage may occur to the equipment.

WARNING! Do not transport the unit with the PTO engaged.

NOTE: The truck engine 2-speed must be in the low setting before moving the unit during bridge operation. Vehicle speeds must not exceed 1.5 miles per hour when the booms are deployed.

Operation

Drivers Side DEPLOYMENT:

- At the truck cab location, set the truck parking brake.
- At the truck cab location, turn the ignition switch, unit power, and intercom ON.
- Select and engage the power source, (Truck PTO or Auxiliary Engine).
- Engage engine 2 speed to run truck engine at high idle.
- At Turret-1 location, turn on the intercom and adjust the volume.
- At Turret-1 location, Plus-1 Operator Interface, select the AXLE LOCK COUNTERWEIGHT mode (1).
- Hold the LEFT SIDE OPERATION (1) button until the axle locks and sliding counterweight are deployed. Function flashes red until fully engaged and then green.
- Select UNIT ON
- At the Plus – 1 MAIN MENU select CONTROL SYSTEMS.
- Turn the Ground Controller on as noted on page 20.
- At Turret-1 location, engage foot pedal and lower Boom-4 down.
- Remove the boom tie down device.
- Lower both of the platform rests.
- At Turret-1 location, select X to return to the MAIN MENU screen. Select PLATFORM LEVELING, then MANUAL, and then PLATFORM UN-STOW until platform is level.
- Select AUTOMATIC.
- Select X to return to MAIN MENU screen.
- Select FLIGHT PATH RULES REALTIME. This mode will indicate condition of limit switches as they become engaged during operation throughout the flight pattern.
- At the Plus – 1 MAIN MENU select CONTROL SYSTEMS.
- Turn the Ground controller OFF and the Platform controller ON.
- Board the platform.
- Ensure Platform radio controller is ON and press the radio enable button.
- Turn on the intercom and adjust the volume.
- Operate Boom-4 control to raise Boom-4 up so the platform is higher than the bottom of boom three.
- Raise Boom-1 control to raise the boom assembly to clear objects, about 12 inches above the rests.
- With the Booms leveling switch in the manual position, adjust Boom Leveling as needed to lift Boom-2 off the rests and keep the boom approximately level.
- Operate Boom-1 to adjust the height of the boom assemblies to clear any obstructions.
- Adjust Boom Leveling as needed.
- Operate Turret-1 control CW until Boom-1 is positioned 90 degrees to the bridge structure.
- Operate Turret-2 CW until boom-2 and Boom-3 are parallel to the bridge structure.
- Operate Boom-2 and Boom-3 open until Boom-2 is vertical and Boom-3 is horizontal. Boom-3 and Boom-4 control may now be operated to provide clearance. The platform will automatically level as Boom-2, Boom-3 or Boom-4 are moved.
- Operate Turret-2 CW to rotate the platform under the bridge.
- The platform may now be rotated and Boom-4 extended as necessary to reach the desired location.
- Boom-3 and Boom-4 may be used to raise and lower the platform as desired.

Operation

Drivers Side Deployment:

STOWING:

- Retract Boom-3 and Boom-4 extensions.
- Operate the platform rotation to center platform rotation indicator arrows.
- Operate Turret-2 CCW until Boom-2 and Boom-3 are parallel to the bridge.
- Operate Boom-2 and Boom-3 control to **completely close both booms**.
- Operate Boom-4 to adjust for proper clearance.
- Operate Boom-1 to adjust for proper clearance. Adjust Boom Leveling as needed.
- Operate Turret-2 CCW until the booms stop traveling.
- Operate Turret-1 CW until the booms stop traveling.
- Operate Boom-1 Down, and Boom Leveling Out to place the booms in their rests. Booms should be placed in their rests simultaneously. If not place T-1 end of booms in first.
- Adjust Boom-4 to provide safe exiting of the platform.
- At Turret-1 location, select "ESC" to return to the "MAIN MENU' screen.
- Select "PLATFORM LEVELING", then "MANUAL", and then "PLATFORM STOW" until platform is stowed.
- At Turret-1 location turn off Platform Radio and turn on Ground Radio, then press radio enable button
- At Turret-1 location, raise Boom-4 until boom four stops
- At Turret-1 location, raise Boom-1 and retract Turret-2 until booms are about 12 inches above rests.
- At Turret-1 location, raise Boom-1 about 12 inches.
- Lift and secure the platform rests.
- At Turret-1 location, lower Boom-1 and operate Boom Leveling out into the rests.
- Install boom tie down.
- Select X to return to the MAIN MENU screen.
- Select AXLE LOCK COUNTERWEIGHT screen.
- Hold the RETURN LEFT SIDE OPERATION (1) button until the axle locks and sliding counterweight are fully disengaged. Function flashes in red, until fully disengaged and then is indicated in green.
- Go to the cab, shut down the Unit Power, PTO and Intercom systems.

WARNING! Do not operate Boom Leveling Out (Turret 2) when booms are stowed for any reason. Damage may occur to the equipment.

WARNING! Do not transport the unit with the PTO engaged.

NOTE: The truck engine 2-speed must be in the low setting before moving the unit during bridge operation. Vehicle speeds must not exceed 1½ miles per hour when the booms are deployed.

Auxiliary Engine: Generator/Emergency Hydraulic Backup Source.

The auxiliary engine is designed to operate as an emergency back-up hydraulic power source to provide hydraulic flow to operate the booms and axle locks or the AC 120 volt power generator (not both at the same time). The truck transmission mounted hydraulic pump is considered the primary power source of hydraulic flow, however the auxiliary engine is designed to provide hydraulic flow if the truck mounted system is not available or if 120 volt AC power is required.

- The auxiliary engine is diesel driven and draws fuel from the truck-mounted fuel tank.
- The key switch for preheating and starting the auxiliary engine is located at turntable #1 on the electrical enclosure. An auxiliary engine hour meter is also provided at this location.
- The auxiliary engine may be operated with the truck ignition on and truck engine running. **PTO must be off if using the auxiliary engine hydraulic pump**. *

***NOTE: If both hydraulic pumps (truck and auxiliary engine) are sending hydraulic flow to the unit, the unit functions may become abrupt and difficult to control. Make sure that the truck engine is not running or the truck PTO is not engaged.**

AIR COMPRESSOR (Optional)
The below deck mounted air compressor will provide compressed air to the air tool outlet in the platform. To operate the air compressor, the truck engine must be on, PTO engaged, "UNIT POWER" in the cab on and two speed in the high idle position.
At the Plus-1 monitor "MAIN MENU" screen, select "ACCESSORIES" button #5 then "AIR COMPRESSOR" button #1. The compressor will operate and cycle as required.

Operation

"ALL OPERATORS MUST BE TRAINED IN THE USE OF THE SYSTEM OVERRIDE" THESE SYSTEMS "ARE NOT" TO BE USED TO MOVE BOOMS OUTSIDE OF THE NORMAL OPERATIONAL ENVELOPE.

WARNING *THE ELECTRICAL SYSTEM OVERRIDE AT THE TURNTABLE #1 CONTROL STATION IS TO BE USED TO RETRIEVE BOOMS FROM UNDER THE BRIDGE* ***IN AN EMERGENCY ONLY (ELECTRICAL MALFUNCTION).***

- Open the cover from Turntable #1 to access the manual control handles.
- Operate the manual control handles to retrieve the boom from under the bridge and stow them onto the truck. Foot switch must be depressed.
- NOTE: The auxiliary engine hydraulic pump may operate the unit in the event of mechanical or electrical failure. Unit will operate in this condition by starting the auxiliary engine, and placing the switch on the T-1 electrical enclosure to BACK-UP.

THE PLUS-1 "LIMIT SYSTEM" OVERRIDE FEATURE IS TO BE USED TO RETREIVE THE BOOMS IN THE EVENT OF A LIMIT SWITCH MALFUNCTION ONLY.

- At the Plus-1 monitor:
  - "MAIN MENU" screen select the "CONTROL SETTINGS" button #8.
  - Enter the password 1010 and press "OK".
  - Press button #4 Rule Override
  - Press and hold the "Over Ride Screen" button #1. You will notice that while this button is being held an alarm will sound to provide notice that the limit safety switches are being overridden. Additionally the "FLIGHT PATH – REAL TIME" screen will appear displaying the rules that are being overridden.
  - Using the Ground Radio transmitter operate the booms past the malfunctioning limit(s).

WARNING! This feature completely voids the limit safety switches. After releasing the override button the screen will default back to the main menu in 15 seconds.

Operation

AUTOMATIC PLATFORM LEVELING SYSTEM

The platform is designed to remain level during the operation of the booms. This system will automatically level the platform any time that the platform leveling is in the automatic position.

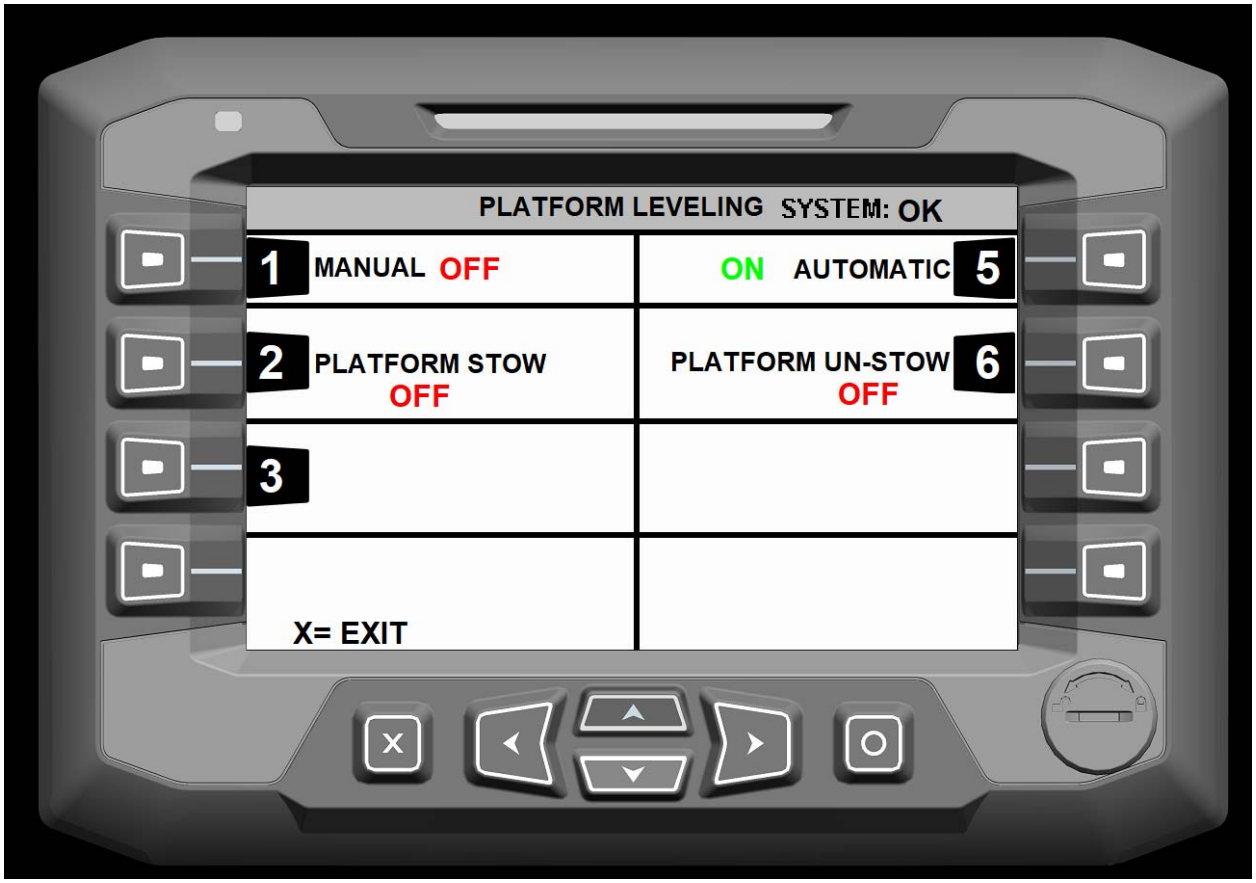
To automatically level the platform:

1. Select button #4 “PLATFORM LEVELING” at the Plus-1 “MAIN MENU” screen.
2. Select button #5 “AUTOMATIC” and then depress the foot switch. Platform will automatically level whenever a footswitch is depressed or enable button activated.

To manually level the platform:

1. Select “PLATFORM LEVELING” at the Plus-1 “MAIN MENU” screen.
2. Select button #1 “MANUAL”, depress the footswitch and then press either “PLATFORM STOW” button #2 or “PLATFORM UN-STOW” button #6 until desired platform position is reached.

POWER INTERRUPTION – If the unit power is shut OFF while the unit is deployed, the radio controls and platform automatic leveling default to off. The operator at the ground station (Turret-1) must go to the Plus-1 monitor and turn on the Radio Control that was being used and select the desired Platform leveling setting.



Operation

Control Systems

This unit is equipped with two radio/tethered control transmitters. Each transmitter is individually marked either “Ground” or “Platform”. The user has the option to use the controller either wirelessly (radio controls) or tethered (wired). There is a 3-foot tether cable provided in platform and 6-foot tether (shipped loose) provided for the ground. It is recommended to use the tether when operating from the platform to minimize possible inference caused by bridge structures. To activate a transmitter, it must be selected at the Plus-1 monitor as follows:

At the Plus-1 Monitor:

- MAIN MENU – select button #3, for the “RADIO CONTROLS” screen.
- At “RADIO CONTROLS” screen –
    - Turn OFF or ON the “RADIO GROUND” controls by pressing button #1.
    - Turn OFF or ON the “RADIO PLATFORM” controls by pressing button #5.
    - Return to “MAIN MENU” press “ESC” button.

A cradle is provided for each transmitter at turntable one and platform. It is important to install the transmitter into the cradle to prevent accidental damage to the transmitter. The transmitter must be removed from both locations before road travel.



Platform or Ground Transmitter

Operation

To Operate The Transmitter:

The transmitter at the ground and platform is activated in both modes by the following sequence:

1. The red mushroom head off switch must be in the on (up) position
2. Toggle the momentary start switch to the full up position once and wait 5-seconds.
3. Toggle the switch a second time to connect to the receiver
4. If in the wireless mode, an antenna will appear on the LCD screen with a numerical percentage figure indicating signal strength. If tethered, a plug will appear on the screen.
5. To shut the transmitter down, toggle the start switch off. It is not necessary to shut off or push down on the red mushroom head stop switch.

 **Note: The red, mushroom head stop switch on the transmitter only stops the boom functions and does not stop the truck engine. Use the engine stop buttons to stop both the truck engine and hydraulic functions.**

Whenever you change from radio to tether mode, the transmitter must be shutoff first and then restarted after the change has taken place.

When the transmitter is tethered, it's powered by the trucks 12v DC system. It does not charge the batteries when it's tethered.

CAUTION:  **Remove the controller from its dock before stowing the unit for any transport.**

Proper storage for both controllers can be found inside the vehicle storage compartment.

The transmitter operates on rechargeable batteries. The battery charger is located on the cab stand. A spare battery is provided for each transmitter. Also provided is a 120-volt AC, battery charger.

Receiver

Each transmitter has its own receiver. The tethered connection originates at each receiver. The antenna for the each receiver is located on top of the receiver. The ground receiver is located on Turret-1 and Platform receiver is located in the platform.

Refer to the radio control section for further operating details.

SYSTEM RULES

Limit switches are installed on several of the unit's functions to prevent movement of the booms into positions that could cause unsafe operation. If the unit is operated in such a manner that a limit switch is tripped, that function will be stopped.

TO RESUME OPERATION IT WILL BE NECESSARY TO REVERSE THE FUNCTION THAT CAUSED THE LIMIT SWITCH TO TRIP, OR OPERATE ANOTHER FUNCTION THAT WILL ALLOW CONTINUED TRAVEL.

The function joysticks are controlled through the Plus-1 controllers and the LCD display module located at the Turntable #1 control console. When a limit switch is tripped and the function stops, a programmed "Flight Path Rule" disables that particular function.

By pressing button #2 (FLIGHT PATH RULES REALTIME) on the LCD display Main Menu screen, you will be able to see active Flight Path rules displayed in RED text. You will also see in GREEN text the action(s) required to regain function.

A62T FLIGHT PLAN BOOM AND PLATFORM

RULE NO#	RULE NAME	RULE EXPLANATION
1	BOOM 2 50°	DISABLES BOOM 3 TELE EXTEND UNTIL BOOM 2 IS OPEN BEYOND 50°.
2	BOOM 2 50°	DISABLES BOOM 2 CLOSE, BOOM 3 OPEN, AND BOOM 4 DOWN WHEN BOOM 2 IS AT 50° AND BOOM 3 IS AT 70°.
3A	TURRET 2 360° CW	DISABLES TURRET 2 CW WHEN BOOM 2 IS LESS THAN 20° AND TURRET 2 360° CW IS ENGAGED.
3B	TURRET 2 360° CCW	DISABLES TURRET 2 CCW WHEN BOOM 2 IS LESS THAN 20° AND TURRET 2 360° CCW IS ENGAGED.
4	BOOM 2 20°, BOOM 3 70°	DISABLES BOOM 2 CLOSE AND BOOM 3 OPEN UNTIL BOOM 2 IS OPEN BEYOND 50°.
5A	BOOM-3 TELE, T2 CCW	DISABLES T2 CCW AT 80° WHEN BOOM-2 IS BEYOND 50° AND THE WALKWAY IS EXTENDED
5B	BOOM-3 TELE, T2 CW	DISABLES T2 CW AT 80° WHEN BOOM-2 IS BEYOND 50° AND THE WALKWAY IS EXTENDED
6	BOOM 3 TELE EXTEND	BOTH TURRET 2, 200° SWITCHES ARE OFF THE PLATE, DISABLING BOOM 3 TELE EXTEND.
7A	TURRET 2 200 ° CCW	DISABLES TURRET 2 CCW AT 200° WHEN BOOM 2 IS OPEN BEYOND 20° AND TURRET 2 200° CCW SWITCH IS OFF THE PLATE.
7B	TURRET 2 200 ° CW	DISABLES TURRET 2 CW AT 200° WHEN BOOM 2 IS OPEN BEYOND 20° AND TURRET 2 200° CW SWITCH IS OFF THE PLATE.
8	BOOM 2 50 ° AND BOOM 3 TELE EXTENDED	DISABLES BOOM 2 CLOSE AND BOOM 3 TELE EXTEND WHEN BOOM 2 IS LESS THAN 50°, EITHER OF THE TURRET 2 200° LIMIT SWITCHES ARE OFF THE PLATE, AND THE BOOM 3 TELE IS EXTENDED
9	PLATFORM LEVELING	DISABLES BOOM 2 OPEN, BOOM 3 CLOSE AND BOOM 4 UP.
10	BOOM 3 30° OPEN	DISABLES BOOM 2 CLOSE AND BOOM 3 OPEN WHEN BOOM 2 IS LESS THAN 50°, AND BOOM 3 IS AT 30°
11	BOOM 3 70° OPEN	DISABLES BOOM 2 CLOSE LESS THAN 50° AND BOOM 3 OPEN BEYOND 70°
12A	TURRET 1 CW	DISABLES TURRET 1 CW ROTATION WHEN IT REACHES ITS LIMIT.
12B	TURRET 1 CCW	DISABLES TURRET 1 CCW ROTATION WHEN IT REACHES ITS LIMIT.
14A	UNIT ENABLE	FOOT SWITCH OR ENABLE BUTTON MUST BE DEPRESSED FOR BOOMS AND/OR TURRETS TO OPERATE.
23A	BOOM LEVELING OUT	DISABLES TURRET-2 ARTICULATION WHEN THE ANGLE EXCEEDS 6°.
23B	BOOM LEVELING IN	DISABLES TURRET-2 ARTICULATION WHEN THE ANGLE EXCEEDS 6°.
24	BOOM 4 ANGLE LIMIT	DISABLES PLATFORM ROTATE WHEN BOOM 4 IS BELOW 0°.
25	PLATFORM ROTATE	DISABLES BOOM 4 DOWN WHEN THE PLATFORM IS ROTATED OFF THE CENTER POSITION.
26A	BOOM 1 UP	DISABLES BOOM 1 UP WHEN TURRET-2 POSITION EXCEEDS 6°.
26B	BOOM 1 DOWN	DISABLES BOOM 1 DOWN WHEN TURRET-2 POSITION EXCEEDS 6°.
27	BOOM LEVELING AUTO	ENABLES AUTOMATIC BOOM LEVELING AS LONG AS BOOM 2 IS LESS THAN 20°
34	BOOM-2 OPEN	DISABLE BOOM 2 OPEN AT 20° IF BOTH TURRET-2 200° SWITCHES ARE OFF THE PLATE 103401

Operation

TRUCK MOVEMENT WITH THE BOOMS DEPLOYED

Communication - The driver and basket operator must talk clearly and avoid speech patterns that could cause confusion. Only one person should communicate with the driver. When directions are given to the driver always say the drivers name so he knows that he is being spoken to. Don't talk while the truck is being moved!

Traction – Do not move the truck unless booms 2, 3 and 4 are positioned under or parallel to the bridge. If traction cannot be maintained due to road surface conditions, engage the Power Divider Lock (PDL).

MOVING THE TRUCK

- Platform operator checks for obstacles. I.e. light poles, power lines, drains, etc.
- Intercom - Basket operator communicates the movement desired.
- Driver checks for obstacles.
- Intercom - Driver repeats the directions back to the basket operator.
- Intercom - Basket operator confirms directions "CORRECT –or- YES"
- Step down the 2-speed throttle.
- Depress the foot brake.
- Place the truck transmission into drive (or reverse).
- Release the parking brake.
- Intercom - Communicate to the basket operator that the truck is about to move and the direction of movement i.e. "DRIVING FORWARD" –or- "BACKING UP".
- Feather the foot brake to move the truck.
- Intercom - Basket operator tells the driver to stop "STOP".

STOPPING THE TRUCK

- Feather the foot brake to stop the truck.
- Set the parking brake.
- Place the truck transmission into neutral.
- Step up the 2-speed throttle.
- Intercom - The driver tells the platform operator that the transmission is in neutral, parking brake is set and drop the two speed throttle to idle.

Operation

ACT Communication System

This Underbridge unit is equipped with a communication system between the cab, ground station (Turret-1) and the Platform.

The ACT (Always Clear Talking) intercom system has updated noise cancellation circuitry that essentially eliminates acoustical background noise. The compact control module is separate from the speaker box to provide installation flexibility. Multiple mounting options that only require a two-wire connection between stations, and hands-free remote operation make this intercom especially useful for aerial applications. A high level output signal ensures high quality sound even when the wires are routed through the aerial turntable.
The intercom system is designed to meet rescue and fire service requirements for a voice communications system. It is weather-resistant and specifically designed for outside use on fire service apparatus and aerial platforms.

Features
Active Noise Cancellation
High Level Output Signal
Hands Free Remote Station (System Option)
Specifications
Supply Voltage: 12 VDC (24 VDC Option)
Supply Current: 0.5 Amps / Station



Cab Station
Speaker box, Push-to-talk module, on-off switch, headset/intercom toggle and headset jack.



Ground Station – Turret-1
Speaker box, Push-to-talk module, headset/intercom toggle and headset jack.



Platform Station Speaker box, Hands Free module

Operation

Intercom Operation

- The Push-To-Talk modules are always in receive mode. The Push-To-Talk button must be pressed to put the module into transmit mode.
  The hands free module is always in transmit mode. To talk on the intercom the operator speaks and the intercom transmits. It is in receive mode when another module is transmitting.

- Turn intercom system on in the cab. The toggle switch is located adjacent to the headset/jack toggle switch. The intercom system is powered off the vehicle ignition switch. If the Unit Power switch is turned off, the intercom system will remain on. It is recommended to turn the intercom system off for road travel

- Press the Push-To-Talk button to put control module in transmit mode and speak toward the control module microphone.
  Result: Voice is heard over speaker(s) connected to other control modules. (Adjust the volume level buttons at each module for receive level.)
  Repeat step 2 at each control module. If a hands free module is installed speak toward the control module microphone and it is in transmit mode.

Headset Operation

- When the toggle switch is in the headset position, all communication at that particular intercom station will be through the headset. Simply plug the headset into the jack. The headset will be in the receive mode. Depress the "Push-to-talk" button on the headset's belt switch to put it in the transmit mode.

Optional Headset Jacks

- If the unit is equipped with optional, additional headset jacks, they will be wired from the Turret-1 intercom station. The toggle switch at this station will have to be in the headset position for these optional headsets to operate. *Note; when the toggle switch is in the headset position, all communication at the turret-1 intercom station will be through the headset.*

Intercom Cover

- The Intercom station at Turret-1 and the Platform are supplied with a weatherproof, canvas type cover. The cover is secured by Velcro material. They should be covered for extended road travel or during storage of the vehicle.

Operation


ACT Always Clear Talking
INTERCOM SYSTEM
Model ICA900
ACT
VOLUME
PUSH TO TALK
FRC INTERCOM
Push-To-Talk Control Module
Speaker Box
ACT
VOLUME
FRC INTERCOM
Hands Free Control Module

PTO Operation, S/N 10309

The PTO (Power Take Off) switch and wiring on this vehicle is provided by Kenworth. The switch is located on the far right-hand side of the dash. Refer to the chassis diagrams for PTO wiring. To operate, turn the switch on.

The hour meter for the PTO is located right hand gauge cluster of the dash. The PTO Light (green colored) is located in the dash cluster.

The PTO should always be shut off when you are done operating the Bridge Inspection Device and when you are driving the chassis.

There is an automatic shutoff device programmed on this vehicle that will disengage the PTO if the vehicle goes over 5 MPH. The PTO will reengage once the engine RPM or speed is lowered to the acceptable level.

The PTO will not engage with the engine on high idle (two-speed). When you depress the foot brake with the engine on high idle, the engine will return to normal idle. Once you release the foot brake, the engine will return to high idle.



PTO HOUR METER PTO SWITCH

Operation

Left hand deck step



Left-hand deck access step shown in lowered position



The left hand deck step must be stowed and retainer pin in place, for road travel.

LIFT AXLE SET SWITCH

The Lift Axle Set Switch is located on the lower, right-hand portion of the dash. It should be left in the "ON" position while operating the Under Bridge Inspection Machine. This will keep the rear lift axle on the ground while the parking brake is set.

During a manual regeneration of the chassis engine, this switch must be turned off.

