

AIR-STARTING EQUIPMENT FOR DIESEL ENGINE-ALTERNATORS REQUIREMENTS AND ADJUSTING PROCEDURES

1. GENERAL

- 1.01 This section covers the KS-15777, L51 and L52 and KS-15899, L51 and L52 air-starting equipments for use with manually and automatically started KS-15777 and KS-15899 diesel engine-alternators.
- 1.02 This section is reissued to cover the KS-15899, L51 and L52 air-starting equipments and to change the title of the section. Detailed reasons for reissue will be found at the end of the section.
- 1.03 Reference shall be made to Section 020-010-711 covering general requirements and definitions when additional information is necessary for the proper application of the requirements listed herein.
- 1.04 Before reading a pressure gauge, tap it lightly to be sure it is not sticking.
- 1.05 The KS-15777, L51 and KS-15899, L51 air-starting equipments consist of a 10-cfm air compressor driven by a 2-hp, 220-volt, 3-phase, 60-cycle ac motor, a stand-by air compressor of the same capacity driven by a 2-hp, 48-volt dc motor, and the associated air-storage tanks. The arrangement of the equipment is shown in Fig. 1.
- 1.06 The KS-15777, L52 and KS-15899, L52 air-starting equipments are the same as the list 51, except that the ac motor-compressor has a 440-volt motor.
- 1.07 When the air-starting equipments are used to start more than one diesel engine, an additional active tank is provided for each additional engine. Each additional active tank (KS-15777, L53 or KS-15899, L53 tank) has the same associated equipment as the active tank shown in Fig. 1. The same requirements apply

to the equipment associated with each active tank.

- 1.08 Starting with 250-psi air pressure, each tank can make six normal engine starts without recharging. Pressure changes in the tanks control the ac motor-compressor which can also be operated manually by the HAND-OFF-AUTO switch on the ac motor-starter. The dc motor-compressor is manually operated by the START-STOP switch buttons associated with the dc motor-starter. Each compressor and tank has its own safety valve, check valve, and hand valve as shown in the figure. Each tank also has a pressure gauge, a pressure control switch, and a low-pressure alarm switch. A high-pressure alarm switch is connected to the air line between the compressors and the tanks. Operation of the alarm switches is indicated by audible and visual signals comprising a horn and the cranking failure (CF) lamp. The audible signal can be silenced and the horn-disconnect (HD) lamp lighted by pressing the AUDIBLE ALARM SILENCING SWITCH button on the main control cabinet for the diesel engine.

Caution: When air is being compressed, the compressor cylinder head, the air line, and the air-line valves become hot. Use extreme care when opening or closing a valve.

2. REQUIREMENTS

Compressors and Motors

- 2.01 *Cleaning:* The outside surfaces of the motors and air compressors, the fan blades in the compressor pulleys, and the cooling fins on the intercooler tubing shall be cleaned when necessary.

2.02 *Lubrication*

- (a) *Compressor Crankcase Oil Level:* The oil level in the compressor crankcase shall be maintained between the two marks on the

SECTION 026-392-701

stick oil gauge with the same grade of oil used in the diesel-engine crankcase.

Before checking oil level in the ac motor compressor, turn the HAND-OFF-AUTO switch on the ac motor-starter to OFF.

Rotate the oil filler plug once, remove it from the crankcase, and check the level on the stick oil gauge. It is recommended that the oil level be checked monthly.

Caution: *The compressor may fail if the oil level in the crankcase goes below the lower mark on the stick oil gauge.*

(b) **Compressor Oil Pressure:** When the compressor is operating, the pressure reading on the oil pressure gauge shall be between

Min 7 psi
Max 15 psi

Caution: *If the oil pressure goes below 7 psi while the compressor is operating, the compressor may stop delivering air.*

(c) **Motor Bearings:** The motor bearings shall be lubricated annually with 260-300 P ball-bearing grease.

2.03 Record of Lubrication: During the period of installation, a record shall be kept by date of the lubrication of the compressors and this record shall be turned over to the telephone company with the equipment.

2.04 Changing Oil in Crankcase of Compressor: After the first month's operation and thereafter annually, the crankcase oil shall be drained while the compressor is hot. After draining the oil, the crankcase shall be cleaned with SAE-10 oil, drained, and then refilled with the same grade of oil used in the diesel-engine crankcase.

2.05 DC Motor-Commutator and Brush Requirements

(a) The commutator and brushes shall meet the applicable requirements covered in the section dealing with this apparatus.

Refer to (e).

(b) **Brush Holder Clearance:** The clearance between the commutator and the brush holders shall be

Min 1/32 inch
Max 3/32 inch

Use the R-8550 scale.

Refer to (e).

(c) **Brush Length:** The over-all length of the brush shall be

Min 1/2 inch

Use the R-8550 scale.

Refer to (e).

To measure the brush length, raise the brush finger and remove the brush from the holder. If the requirement is met, remount the brush in its original position in the holder.

(d) **Brush Pressure:** The brush pressure on the commutator shall be

Min 10 ounces
Max 12 ounces

Use the R-2202 spring balance.

Refer to (e).

To check the requirement, loop a cord under the brush finger as near as possible to the point of contact with the brush. Engage the hook of the spring balance in the loop and read the gauge just as the brush finger leaves the brush.

(e) Before checking requirements (a) through (d), open the disconnect switch in the dc motor-starter circuit and remove the commutator hand hole covers from the dc motor with the R-2512 wrench.

2.06 Tension of Drive Belts

(a) It shall be possible to deflect the belts vertically 1/2 inch by finger pressure applied midway between the two pulleys.

Gauge by eye.

Before checking the requirement on the ac motor-compressor, turn the HAND-OFF-AUTO switch on the ac motor-starter to OFF.

2.07 Replacement of Air Intake Filter Felt: The filter felt shall be replaced annually.

Caution: *Do not try to clean and re-use a filter felt.*

Air System

2.08 Draining of Air Tanks: The air tanks shall be manually drained of accumulated moisture monthly.

Gauge by eye.

2.09 Operation of Safety Valves

(a) **Before Turnover:** With the active and reserve tanks connected separately to each air compressor, one of the two safety valves in the respective air lines shall discharge within the range of

Min 270 psi
Max 275 psi

Observe the pressure gauge for the tank used in the check.

Check this requirement as follows.

- (1) Turn the HAND-OFF-AUTO switch on the ac motor-starter to OFF and open the ac disconnect switch.
- (2) Close E valve and open D valve. ←
- (3) Close the dc disconnect switch and then start the dc motor-compressor by pressing the START button for the motor-starter.
- (4) Observe the pressure on the reserve tank pressure gauge when either the compressor or tank safety valve discharges. Do not permit the tank pressure to exceed 280 psi.
- (5) Press the STOP button for the dc motor starter.
- (6) Reduce the tank pressure by opening the blow-down valve. Close the valve when the pressure reaches about 250 psi.
- (7) Open E valve and close C and D valves.
- (8) Press the START button for the dc motor-starter.
- (9) Observe the pressure on the active tank pressure gauge when either the compressor or tank safety valve discharges. Do not permit the tank pressure to exceed 280 psi.
- (10) Press the STOP button for the dc motor starter and then open the dc disconnect switch.

(11) Reduce the tank pressure by opening the blow-down valve. Close the valve when the pressure reaches about 250 psi.

(12) Close the ac disconnect switch and then start the ac motor-compressor by turning the HAND-OFF-AUTO switch on the motor-starter to HAND.

(13) Observe the pressure on the active tank pressure gauge when either the compressor or tank safety valve discharges. Do not permit the tank pressure to exceed 280 psi.

(14) Turn the HAND-OFF-AUTO switch to OFF.

(15) Reduce the tank pressure by opening the blow-down valve. Close the valve when the pressure reaches about 250 psi.

(16) Close E valve and open C and D valves. ←

(17) Turn the HAND-OFF-AUTO switch to HAND.

(18) Observe the pressure on the reserve tank pressure gauge when either the compressor or tank safety valve discharges. Do not permit the tank pressure to exceed 280 psi.

(19) Turn the HAND-OFF-AUTO switch to AUTO.

(20) Reduce the tank pressure by opening the blow-down valve. Close the valve when the pressure has decreased to about 250 psi.

(21) Open E valve and close D valve. ←

(b) **After Turnover:** Each safety valve shall discharge when manually operated. This requirement shall be checked every 2 months. To check the requirement, loop a piece of wire through the hole in the safety valve lever or around the valve handle taking care not to touch the valve if it is hot. Operate the valve by pulling on the wire while taking care to avoid the air blast. The air pressure should be above 230 psi to facilitate operating the valve. Compressor safety valves should be checked while the compressor is charging a tank.

(c) Safety valves shall not leak when closed. Gauge by ear.

SECTION 026-392-701

2.10 Setting of Tank Pressure Control Switches (RST and AST): Each tank pressure control switch, checked separately, shall meet the following requirements.

(a) The switch contacts shall close when the associated tank air pressure decreases to 200 ±5 psi.

(b) The switch contacts shall open when the associated tank air pressure increases to 250 ±5 psi.

Check requirements (a) and (b) as covered in (c), using the ac motor-compressor on automatic control.

↖ (c) Start the check when the compressor is not running. Decrease the tank pressure by opening the blow-down valve. Read the tank pressure gauge when the switch contacts close as indicated by starting of the ac motor compressor. Close the blow-down valve. Read the tank pressure gauge when the contacts open as indicated by stopping of the ac motor compressor.

2.11 Setting of Tank Low-Pressure Alarm Switches (APSR and APS): Each tank low-pressure alarm switch, checked separately, shall close its contacts when the associated tank air pressure decreases to the value specified below for the air starting equipment designated.

AIR-STARTING EQUIPMENT	PRESSURE FOR SWITCH OPERATION
KS-15777, L51 and L52	150 ±5 psi
↖ KS-15899, L51 and L52	125 ±5 psi

Before checking the requirement, turn the HAND-OFF-AUTO switch on the ac motor-starter to OFF. Decrease the tank air pressure by opening the blow-down valve. Read the tank pressure gauge when the switch contacts close as indicated by sounding of the alarm. Close the ↖ blow-down valve. If the requirement is met, turn the HAND-OFF-AUTO switch to AUTO. The ac motor compressor should start and increase the tank pressure to 250 psi. The audible alarm should silence.

2.12 Setting of Air-Line High-Pressure Alarm Switch (UHP): The air-line high-pressure alarm switch shall meet the following requirements.

(a) The switch contacts shall close when the air-line pressure increases to between

Min 265 psi
Max 270 psi

(b) The switch contacts shall open when the air-line pressure decreases to

Min 250 psi

Check requirements (a) and (b) as covered in (c), using the ac motor-compressor on manual control.

(c) Increase the air-line pressure by turning the HAND-OFF-AUTO switch on the ac motor-starter to HAND. The ac motor-compressor should start. Read the reserve tank pressure gauge when the switch contacts close as indicated by the sounding of the alarm. → Turn the HAND-OFF-AUTO switch to AUTO. The ac motor-compressor should stop. Reduce the reserve tank pressure by slightly opening the blow-down valve. Read the reserve tank pressure gauge when the switch contacts open → as indicated by silencing of the alarm. Close → the blow-down valve.

2.13 Leakage of Air: There shall be no appreciable leakage of air from the air system or from the compressors.

Gauge by ear.

3. ADJUSTING PROCEDURES

3.001 List of Tools, Test Apparatus, and Materials

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
KS-6320	Orange Stick
KS-6367	7/16- and 5/8-inch Open Double-end Flat Wrench
KS-14164	Red Sable, Round, Artists Show Card Brush
R-1289	1-5/8 Inch Open Single-end Flat Wrench
R-1538	10-inch Pipe Wrench
R-1539	18-inch Pipe Wrench

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
R-1542	6-inch Adjustable Wrench
R-2512	8-inch Adjustable Wrench
R-2652	9-inch Thin Monkey Wrench
R-2698	1/2- and 9/16-inch Hex. Box Wrench
—	15-inch Monkey Wrench, Billings & Spencer No. 90
—	1/2- and 7/16-inch 12 point Offset Box Wrench J. H. Williams & Co No. 8725
—	4-inch E Screwdriver
—	1-1/4 Inch Screwdriver Stanley Tools No. 2012
—	Long-nose Pliers
—	No. 8 Sash Brush, Devoe & Raynolds No. 65274
—	Grease Gun, Lincoln Engineering Co No. 5958
—	Receptacles for Oil and Moisture
TEST APPARATUS	
81A	Test Set
W1AG	Cord (2 required for test set)
R-2202	Spring Balance
R-8550	6-inch Steel Scale
MATERIALS	
KS-7860	Petroleum Spirits
KS-14666	Cloths
260-300 P	Ball Bearing Grease
—	Lubricating Oil SAE-20 or SAE-30 (same grade used in diesel-engine crankcase)
—	Lubricating Oil SAE-10
—	High Temperature Thread Compound, Crane Co Formula No. 425A

3.002 After checking requirements or making adjustments, make sure that all hand valves, except D valve and the tank blow-down valves, are open and that D valve and the blow-down valves are closed. Also make sure that the dc disconnect switch is open, the ac disconnect switch closed, and the HAND-OFF-AUTO switch on the ac motor-starter is turned to AUTO. Press the RESET button on the ac motor-starter to insure that the motor circuit is prepared to start.

3.003 Care should be taken when using petroleum spirits in the vicinity of dc machines as the fumes may affect commutation adversely by softening commutator film. To avoid need for burnishing commutators of dc machines after doing any cleaning operations called for in this section, provide adequate ventilation, use the absolute minimum of petroleum spirits required for the cleaning operation, and keep the container closed when not in use.

Compressors and Motors

3.01 Cleaning (Reqt 2.01)

- (1) Operate the control switch for the motor-starter to OFF or STOP and open the associated disconnect switch.
- (2) Remove dust from the compressor and intercooler tubing fins using No. 8 sash brush.
- (3) Clean the pulley fan blades and crankcase surface using a KS-14666 cloth moistened with KS-7860 petroleum spirits and then a dry cloth.
- (4) Remove dust from the motor using a dry KS-14666 cloth.

3.02 Lubrication (Reqt 2.02)

- (1) **Compressor Crankcase Oil Level:** With the control switch for the motor-starter in the OFF or STOP position, remove the oil filler plug and stick oil gauge from the filler hole in the crankcase. Add sufficient oil to the crankcase to bring the oil level to just below the top mark on the stick oil gauge.
- (2) **Compressor Oil Pressure:** With the compressor operating and hot, adjust the oil pressure as follows. Loosen the locknut on the oil pressure adjusting screw with the R-2512 wrench. Turn the screw with the R-1542

wrench clockwise to increase or counterclockwise to decrease the oil pressure shown on the gauge. Adjust the pressure so that the gauge pointer is approximately at the center of the range between 7- and 15-psi pressure on the scale. Tighten the locknut on the screw taking care not to change the setting.

(3) **Motor Bearings:** Add grease to the motor bearing housings as follows.

(a) Operate the control switch for the motor-starter to OFF or STOP and open the associated disconnect switch.

(b) Remove the filler and drain plugs from the bearing housing using the R-1542 wrench.

(c) Using the KS-6320 orange stick, remove as much of the old grease as possible from the bearing housing through the filler and drain holes. Remove any grease from around the holes using a KS-14666 cloth.

(d) Place a receptacle under the drain hole.

Hold the nozzle of the grease gun firmly on the filler hole and pump grease into the housing until grease appears at the drain hole. Remount the filler plug. Wipe grease from the surface around the filler plug and also from around the drain hole. Then remount the drain plug.

3.03 Record of Lubrication (Reqt 2.03)

(No procedure)

3.04 Changing Oil in Crankcase of Compressor (Reqt 2.04)

(1) Operate the control switch for the motor-starter to OFF or STOP and open the associated disconnect switch.

(2) Place a receptacle under the crankcase oil drain pipe. Remove the drain pipe cap using the R-1538 wrench. Remove the oil filler plug and let the oil drain into the receptacle. Remount the drain pipe cap.

(3) Put approximately 3 pints of fresh SAE-10 oil into the crankcase and remount the filler plug. Clean the crankcase by operating the compressor for about 5 minutes. Stop the compressor as covered in (1) and then drain the oil as covered in (2).

(4) Refill the crankcase as covered in 3.02(1). The capacity of the crankcase is 3 pints.

3.05 DC Motor-Commutator and Brush Requirements (Reqt 2.05)

(1) For adjusting procedures refer to the section dealing with this apparatus.

(2) **Brush Holder Clearance:** Loosen the brush holder clamping screw with the 4-inch E screwdriver and rotate the brush holder on its stud as required. Check brush alignment and brush spacing. After adjustment, securely tighten the clamping screw.

(3) **Brush Length:** If the requirement is not met, replace the brush.

(4) **Brush Pressure:** If the requirement is not met, adjust the brush holder spring pressure by repositioning the outer end of the spring in the notches.

3.06 Tension of Drive Belts (Reqt 2.06)

(1) Before adjusting the tension of the drive belts, operate the control switch for the motor-starter to OFF or STOP and open the associated disconnect switch. Slightly loosen the motor mounting bolts with the R-2968 wrench. Shift the position of the motor until the belt tension is satisfactory. Make absolutely sure that the motor and compressor pulley are in alignment and then securely tighten the motor mounting bolts.

3.07 Replacement of Air Intake Filter Felt (Reqt 2.07)

(1) Operate the control switch for the motor-starter to OFF or STOP and open the associated disconnect switch. Remove the mounting screw in the center of the filter cap using the Williams No. 8725 wrench and then remove the cap and screen. Hold the outer screen and pull the baffles out from inside the inner screen with the long-nose pliers. Remove the inner screen and then the filter felt with the pliers. Discard the felt and separate the baffles. Clean the screens, baffles, cap, and base of the filter using a KS-14666 cloth moistened with KS-7860 petroleum spirits and then a dry cloth.

(2) Mount a new filter felt inside of the outer screen with the ends butting against each other. Mount the inner screen against the felt with the ends overlapping. Place the larger

corrugated baffle against the inner screen. Then place the plain baffle inside of the corrugated baffle with the cut-out portion at the opposite end from the cut-out portion of the corrugated baffle. Similarly mount the remaining corrugated baffle with the cut-out portion opposite that of the plain baffle. Place the assembly and the cap on the filter base, insert and tighten the screw on the cap.

Air System

3.08 *Draining of Air Tanks* (Reqt 2.08)

(1) Place a clean receptacle under the blow-down valve and slightly open the valve. When the moisture has drained off, close the valve.

3.09 *Operation of Safety Valves* (Reqt 2.09)

(1) If a safety valve does not operate satisfactorily, the trouble may be due to a dirty or defective valve. Operate the valve several times manually to blow out any dirt. If the operation is still unsatisfactory, replace the valve.

3.10 *Setting of Tank Pressure Control Switches* (RST and AST) (Reqt 2.10)

(1) *Pressure Control Switch for KS-15777, L51 and L52 Air-Starting Equipments:*
This switch is equipped with a trip indicator behind the window in the right side of the cover. The switch contacts are closed when the indicator is at the top of the window and open when it is at the bottom.

(a) If requirement (a) is not met, turn the HAND-OFF-AUTO switch on the ac motor-starter to OFF and set the tank air pressure to 200 psi as covered in (3). Remove the cap over the range adjusting screw on top of the switch housing with the 4-inch E screwdriver. Observe the trip indicator position and turn the range adjusting screw with the Stanley No. 2012 screwdriver as follows. If the indicator is at the top of the window (contacts closed), turn the screw first counterclockwise until the indicator snaps to the bottom of the window (contacts open) and then slowly clockwise until the indicator snaps to the top of the window. If

the indicator is at the bottom of the window turn the screw slowly clockwise until the indicator snaps to the top. Remount the cap over the range adjusting screw.

(b) If requirement (b) is not met when the switch is adjusted to meet requirement (a), open the disconnect switch in the ac motor-starter circuit to remove the ac line voltage from the tank pressure control switch. Remove the switch cover with the 4-inch E screwdriver. Set the tank air pressure to 250 psi as covered in (3). Using the Stanley No. 2012 screwdriver, turn the differential adjusting screw above the trip indicator completely clockwise. If the trip indicator is down, raise it manually to top position (contacts closed). Turn the differential adjusting screw slowly counterclockwise until the indicator snaps to bottom position (contacts open). Remount the switch cover. Close the ac disconnect switch and turn the HAND-OFF-AUTO switch on the ac motor-starter to AUTO.

(c) Recheck requirements (a) and (b).

(2) *Pressure Control Switch for KS-15899, L51 and L52 Air-Starting Equipments*

(a) If requirement (a) is not met, turn the HAND-OFF-AUTO switch on the ac motor-starter to OFF and open the disconnect switch in the ac motor-starter circuit to remove the ac line voltage from the tank pressure control switch. Remove the switch cover with the 4-inch E screwdriver. Set the tank air pressure to 200 psi as covered in (3). Observe the switch contacts and turn the range adjusting knob or screw at the right side of the switch housing as follows. If the contacts are closed, first turn the range adjuster counterclockwise until the contacts open and then slowly clockwise until the contacts just close. If the contacts are open, turn the range adjuster slowly clockwise until the contacts just close.

(b) If requirement (b) is not met when the switch is adjusted to meet requirement (a), proceed as follows. Make sure that the disconnect switch in the ac motor-starter circuit is open. If the switch cover has not been removed, remove it with the 4-inch E screwdriver. Set the tank air pres-

Γ sure to 250 psi as covered in (3). Turn the differential adjusting knob or screw completely clockwise. If the switch contacts are open, manually close them. Turn the adjusting screw slowly counterclockwise until the contacts just open. Remount the switch cover. Close the ac disconnect switch and turn the HAND-OFF-AUTO switch on the ac motor-starter to AUTO.

L (c) Recheck requirements (a) and (b).

(3) To set the air pressure to the desired value, proceed as follows. If the tank air pressure is too high, reduce it as required by slightly opening the blow-down valve until the correct pressure is reached. If the tank air pressure is too low, start the dc motor compressor by closing the dc disconnect switch and then pressing the START button for the dc motor-starter. Stop the compressor by pressing the STOP button when the tank air pressure is a few pounds over the desired value. Reduce the air pressure as required by slightly opening the blow-down valve.

3.11 *Setting of Tank Low-Pressure Alarm Switches (APSR and APS) (Reqt 2.11)*

Γ (1) *Low-Pressure Alarm for KS-15777, L51 and L52 Air-Starting Equipment*

(a) If the requirement is not met, silence the alarm by pressing the AUDIBLE ALARM SILENCING SWITCH button on the main control cabinet for the diesel engine. Remove the alarm switch cover with the 4-inch E screwdriver and disconnect one of the leads. Set the tank air pressure to 150 psi as covered in (3). Using the KS-6367 wrench, loosen the adjusting screw locknut. Connect the 81A test set across the switch terminals using two W1AG cords. If the test set buzzer sounds, turn the adjusting screw with the wrench first counterclockwise until the buzzer silences and then clockwise until the buzzer again sounds. If the test set buzzer does not sound, turn the adjusting screw clockwise until the buzzer sounds. Tighten the adjusting screw locknut. Remove the test set, reconnect the lead, and remount the switch cover. Increase the tank pressure to about 175 psi as covered in (3) and recheck the requirement.

Γ (2) *Low-Pressure Alarm Switch for KS-15899, L51 and L52 Air-Starting Equipments*

(a) If the requirement is not met, turn the adjusting knob on the end of the housing counterclockwise until the alarm stops. Set the tank air pressure to 125 psi as covered in (3). If the alarm sounds, turn the knob counterclockwise until the alarm silences and then clockwise until the alarm sounds again. If the alarm does not sound, turn the knob clockwise until the alarm sounds. Increase the tank pressure to about 150 psi as covered in (3). If the alarm does not silence, remove the alarm switch cover with the 4-inch E screwdriver and turn the differential adjusting screw inside of the housing completely counterclockwise to obtain the minimum differential pressure setting. Remount the cover and recheck the requirement.

L (3) To set the tank pressure to the desired value, proceed as follows. If the tank pressure is too high, reduce it, as required, by slightly opening the blow-down valve. If the tank pressure is too low, start the ac motor-compressor by turning the HAND-OFF-AUTO switch on the ac motor-starter to HAND. Stop the compressor when the tank air pressure is a few pounds over the desired value by turning the control switch to OFF. Reduce the tank pressure as required by slightly opening the blow-down valve.

3.12 *Setting of Air-Line High-Pressure Alarm Switch (UHP) (Reqt 2.12)*

Γ (1) *High-Pressure Alarm Switch for KS-15777, L51 and L52 Air-Starting Equipments:* This switch is equipped with a trip indicator behind the window in the right side of the switch cover. The switch contacts are closed when the indicator is at the bottom of the window and open when the indicator is at the top.

(a) If requirement (a) is not met, set the reserve tank pressure to 270 psi as covered in (3). Remove the cap over the range adjusting screw on top of the switch housing with the 4-inch E screwdriver. Observe the trip indicator position and turn the range adjusting screw with the Stanley

No. 2012 screwdriver as follows. If the indicator is at the bottom of the window (contacts closed), turn the screw clockwise until the indicator snaps to the top of the window (contacts open) and then turn the screw slowly counterclockwise until the indicator snaps to the bottom of the window. If the indicator is at the top of the window, turn the screw slowly counterclockwise until the indicator snaps to the bottom. Remount the cap on the range adjusting screw. Recheck requirement (b) by reducing the tank pressure.

(b) If requirement (b) is not met when the switch is adjusted to meet requirement (a), remove the switch cover with the 4-inch E screwdriver. Using the Stanley No. 2012 screwdriver, turn the differential adjustment screw above the trip indicator all the way counterclockwise to reduce the switch differential pressure setting to the minimum. Remount the switch cover. Recheck requirements (a) and (b).

(2) *High-Pressure Alarm Switch for KS-15899, L51 and L52 Air-Starting Equipment*

(a) If requirement (a) is not met, set the reserve tank air pressure to 270 psi as covered in (3). If the alarm sounds, turn the range adjusting knob on the end of the switch housing clockwise until the alarm silences and then slowly counterclockwise until the alarm just sounds. If the alarm does not sound, turn the knob slowly counterclockwise until the alarm just sounds. Recheck requirement (b) by reducing the tank air pressure.

(b) If requirement (b) is not met when the switch is adjusted to meet requirement (a), remove the switch cover with the 4-inch E screwdriver. Using the Stanley No. 2012 screwdriver, turn the differential adjustment screw completely counterclockwise to reduce the switch differential pressure setting to the minimum. Remount the switch cover.

(3) To set the reserve tank pressure to the desired value, proceed as follows. If the tank pressure is too high, reduce it as required by slightly opening the blow-down valve. If

the tank pressure is too low, start the ac motor compressor by turning the HAND-OFF-AUTO switch on the ac motor-starter to HAND. Stop the compressor when the tank air pressure is a few pounds over the desired value by turning the control switch to AUTO. Reduce the tank air pressure as required by slightly opening the blow-down valve.

3.13 *Leakage of Air* (Reqt 2.13)

(1) Unless the leak is between the air-starting equipment and the diesel engine, make sure that one of the tanks is charged to 250 psi. Then turn the HAND-OFF-AUTO switch on the ac motor-starter to OFF and open the associated ac disconnect switch.

(2) If the leak occurs at the equipment on one of the tanks other than a gauge, isolate the tank by closing its valves and then release the tank pressure by opening the blow-down valve. If the leak occurs at a gauge, do not release the tank pressure, but close the gauge cock. If the leak occurs in the air line, release the air-line pressure by releasing the air pressure in the active tank. To silence the audible alarm which will operate upon release of air pressure, press the AUDIBLE ALARM SILENCING SWITCH button on the diesel-engine main control cabinet.

(3) To stop a leak at a pipe fitting, separate the union using the 15-inch monkey wrench and the R-1289 wrench, and then remove the pipe from the fitting using the R-1538 and R-1539 wrenches. If the leak is at a safety valve mounting, remove the valve with the R-2652 wrench. If the leak is at a gauge mounting, remove the gauge with the R-2512 wrench. In removing or mounting a gauge, do not put any strain on the case to avoid damaging the gauge mechanism. After separating a pipe threaded connection, apply a small amount of high-temperature thread compound to the male thread using the KS-14164 brush. Take care to keep the compound away from the open end to avoid getting the compound into the air system. Reconnect the pipe or remount the safety valve or gauge and open the gauge cock.

(4) If air is leaking at the coupling nut of a union or of a flared fitting on copper tubing, tighten the nut just sufficiently to stop the leakage. If air is leaking at a com-

SECTION 026-392-701

pressor gasket, tighten the cap screws slightly with the R-2698 wrench while the compressor is hot. If the leakage continues, replace the gasket.

REASONS FOR REISSUE

1. To include reference to KS-15899, L51 and L52 air-starting equipment (1.05, 1.06, and 1.07).
2. To include description of alarm operation (1.08).
3. To revise checking method to cover safety valves and pressure control and alarm switches used on KS-15899, L51 and L52 air-starting equipment [2.09, 2.10(c), 2.11, and 2.12].
4. To revise list of tools, gauges, and materials (3.001).
5. To omit procedure for cleaning oil filter screen (3.04).
6. To revise the adjusting procedures for pressure control and alarm switches used in the KS-15777, L51 and L52 air-starting equipment and to provide adjusting procedures for pressure control and alarm switches used in KS-15899, L51 and L52 air-starting equipments (3.10, 3.11, and 3.12).
7. To refer to high-temperature thread compound instead of sealing compound [3.13(3)].

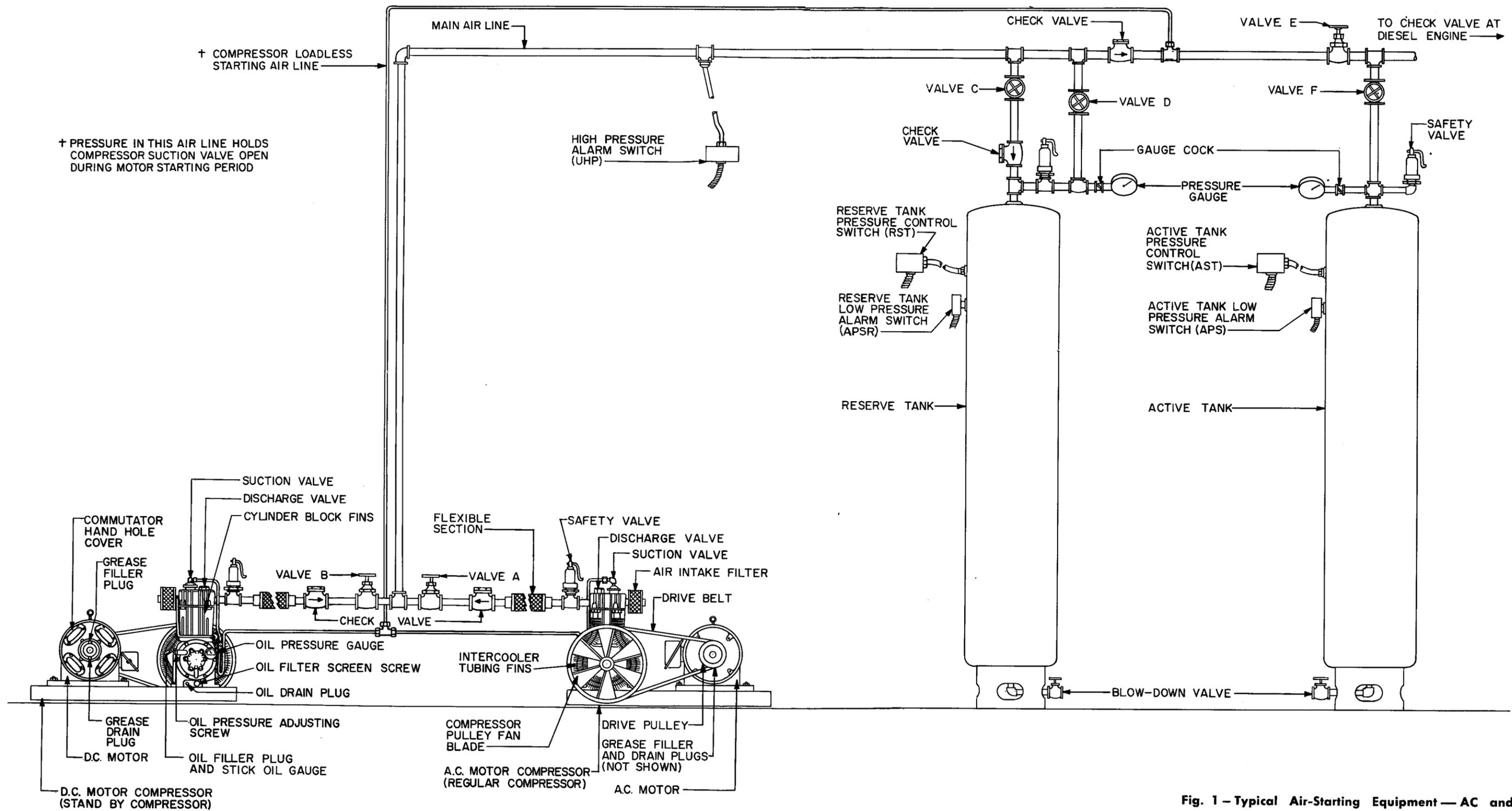


Fig. 1 - Typical Air-Starting Equipment - AC and DC Motor Air Compressors and Associated Tanks (KS-15777, L51 air-starting equipment shown)