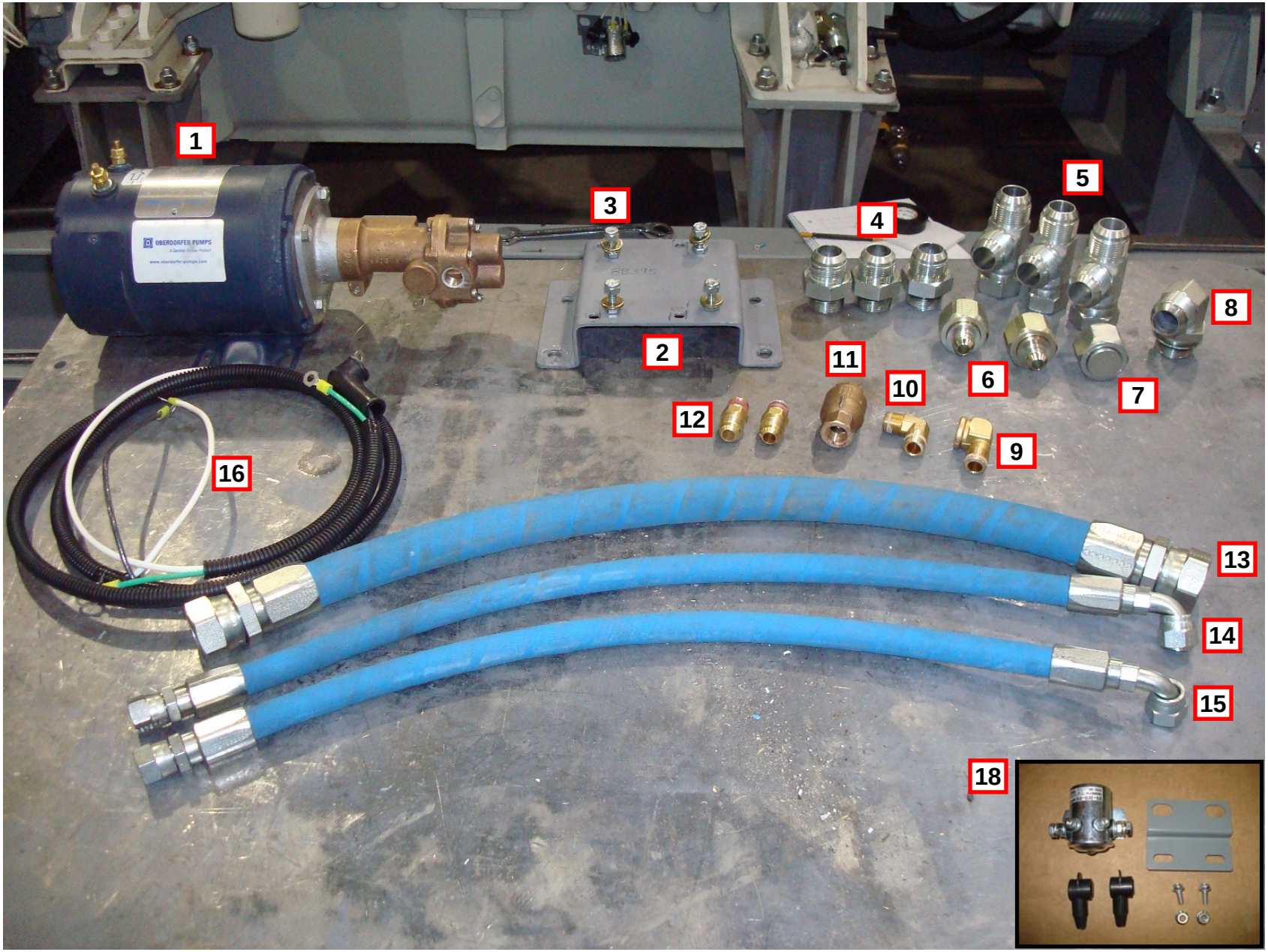
MTU Series 4000 Fuel Priming Booster Kit SA150206



1. Close Coupled Rotary Gear Pump
   - **MTU Onsite Energy #86912**
   - Oberdorfer #N991-32C82
   - Quantity 1
2. Bracket, Fuel Priming Pump Mounting
   - **MTU Onsite Energy #88395**
   - Quantity 1
3. Hex Cap Screw, 5/16"-18 x 3/4" Grade 5 Zinc Plated
   - Fastenal #13053
   - Quantity 4

   Flat Washer, 1/4"USS Zinc Plated Thru Hard High Strength
   - Fastenal #33857
   - Quantity 8

   Lock Nut, 5/16-18 Zinc Plated Nylon Insert
   - Fastenal #37021
   - Quantity 4
4. Adapter, Male 16 JIC To 33mm
   - **MTU Onsite Energy #88396**
   - Tompkins #7400-16-33
   - Quantity 3
5. Tee, Female 16 JIC Swivel To Male 16 JIC
   - **MTU Onsite Energy #89387**
   - Parker #16 R6X-S
   - Quantity 3
6. Reducer, Female 16 JIC To Male 8 JIC
   - **MTU Onsite Energy #88398**
   - Parker #16-8 TRTXN-S
   - Quantity 2
7. Cap, Female 16 JIC
   - **MTU Onsite Energy #88399**
   - Parker #16 FNTX-S
   - Quantity 1
8. Adapter, Male 16 JIC To 33mm (90°)
   - **MTU Onsite Energy #72531**
   - Tompkins #7801-16-33
   - Quantity 1
9. Elbow, Male 3/8” Pipe To Female 3/8” Pipe
   - **MTU Onsite Energy #88400**
   - Parker #1202P-6-6
   - Quantity 1
10. Elbow, Male 3/8” Pipe To Male 3/8” Pipe
    - **MTU Onsite Energy #88401**
    - Parker #1204P-6
    - Quantity 1
11. Check Valve, Female 3/8” Pipe
    - **MTU Onsite Energy #71418**
    - Nibco #3/8” T-480-Y
    - Quantity 1
12. Adapter, Male 8 JIC To Male 3/8” Pipe
    - **MTU Onsite Energy # 47474**
    - Parker #VS48F-8-6
    - Quantity 2
13. Hose, #16 Jumper
    - **MTU Onsite Energy # 88403**
      - Hose
        1. **MTU Onsite Energy #78687**
        2. Aeroquip #FC355-16
        3. Length 24”
      - Fittings
        1. **MTU Onsite Energy #78694**
        2. Parker #20620-16-16
        3. Quantity 2

14. Hose, #8 Supply

- **MTU Onsite Energy #88404**
  - Hose
    1. **MTU Onsite Energy #78684**
    2. Aeroquip #FC355-08
    3. Length 24”
  - Fittings
    1. **MTU Onsite Energy #78945**
    2. Parker #20620-8-8
    3. Quantity 1
    4. **MTU Onsite Energy #88402**
    5. Parker #23920-8-8
    6. Quantity 1

15. Hose, #8 Return

- **MTU Onsite Energy #88405**
  - Hose
    1. **MTU Onsite Energy #78684**
    2. Aeroquip #FC355-08
    3. Length 22”
  - Fittings
    1. **MTU Onsite Energy #78945**
    2. Parker #20620-8-8
    3. Quantity 1
    4. **MTU Onsite Energy #88402**
    5. Parker #23920-8-8
    6. Quantity 1

16. Harness, 24VDC From Crank Circuit

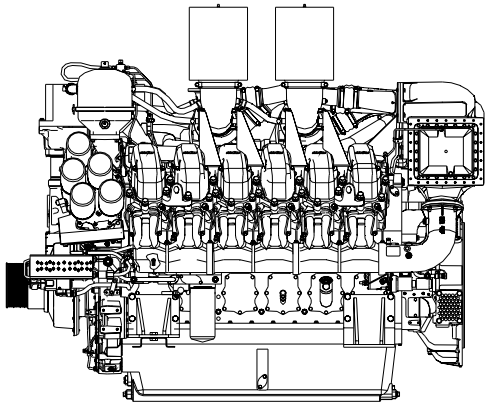
- **MTU Onsite Energy #90058**
  - See Wire Drawing # 818-424 for B.O.M.
  - Quantity 1

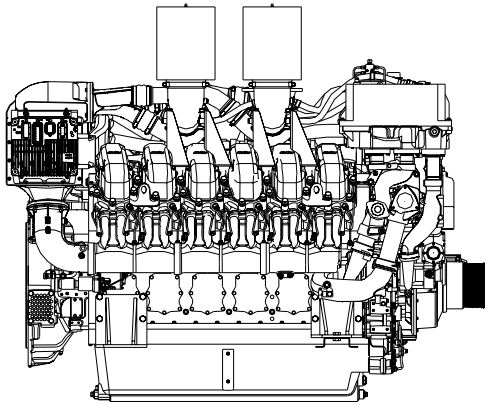
17. Installation Manual ASM-1250-X2-3-1

- **MTU Onsite Energy #89622**
  Quantity 1

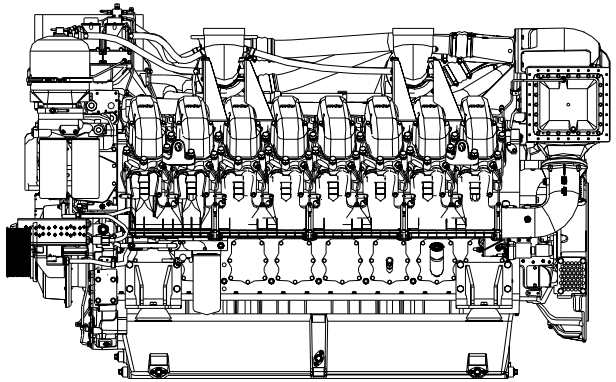
18. Start Solenoid (Needed for Continuous Run Option)

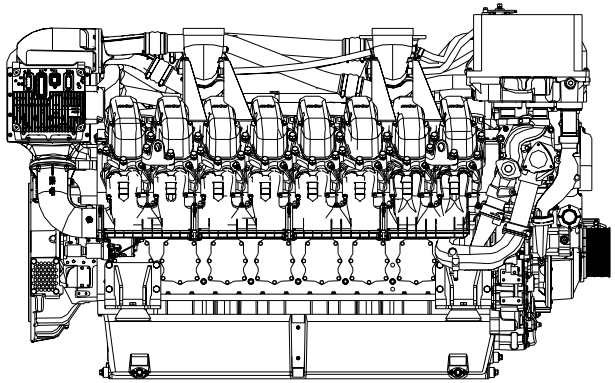
- **MTU Onsite Energy #46001**
- Trombetta #974-2415-010
- Quantity 1
  - Solenoid Mounting Bracket
    1. **MTU Onsite Energy #40742**
    2. Quantity 1
  - 1/4”-20 x 5/8” Flange Bolts
    1. **MTU Onsite Energy #88859**
    2. Fastenal #19902
    3. Quantity 2
  - ¼”-20 Serrated Flange Nut
    1. **MTU Onsite Energy #47700**
    2. Fastenal #37337
    3. Quantity 2
  - Black Insulator Boot
    1. **MTU Onsite Energy #80554**
    2. VTE #218N2V14
    3. Quantity 2



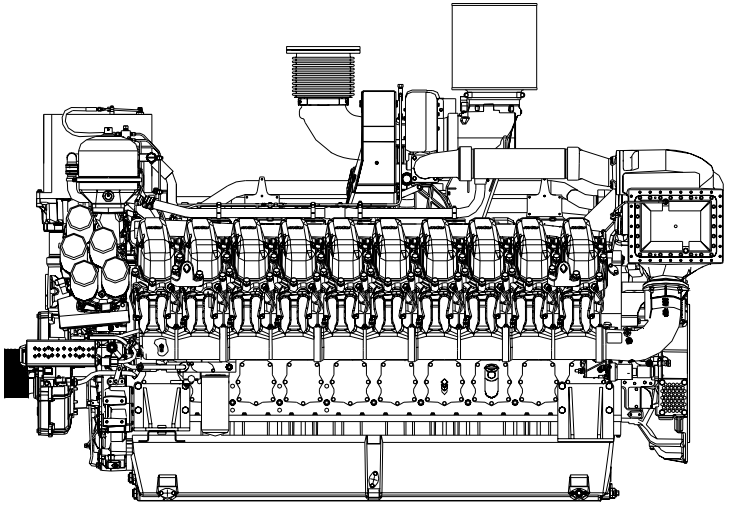


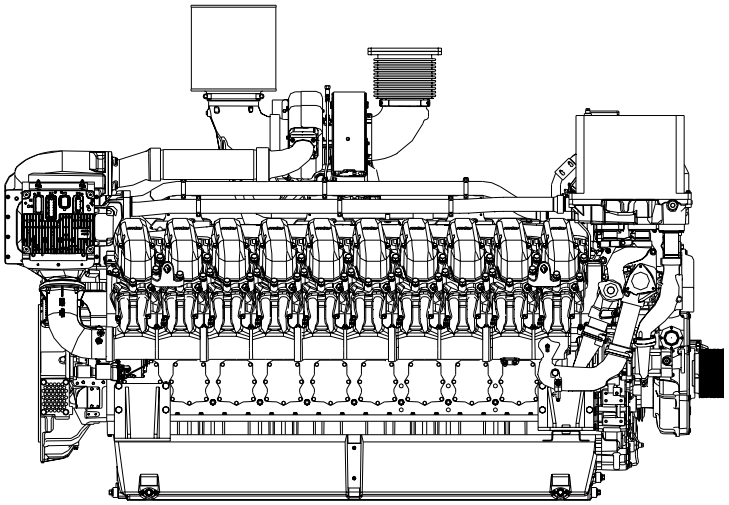
12V4000 Family





16V4000 Family





20V4000 Family

Tools Required

Adjustable wrench

13mm wrench or socket

14mm hex socket or Allen wrench

17mm wrench or socket

24mm wrench

27mm wrench

7/16” wrench

1/2" wrench

1/2" socket

3/8” wrench

3/4” wrench

7/8” wrench

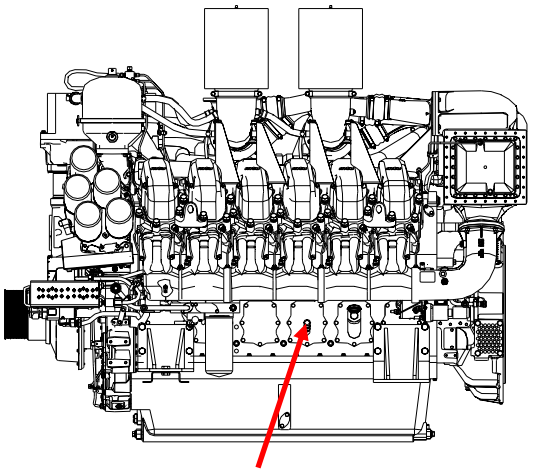
1-1/2” wrench

1-5/8” wrench

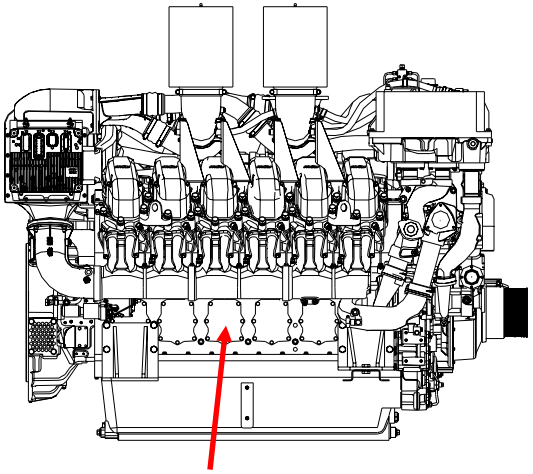
O-Ring lubricant

Pipe dope

12V4000 Preparation



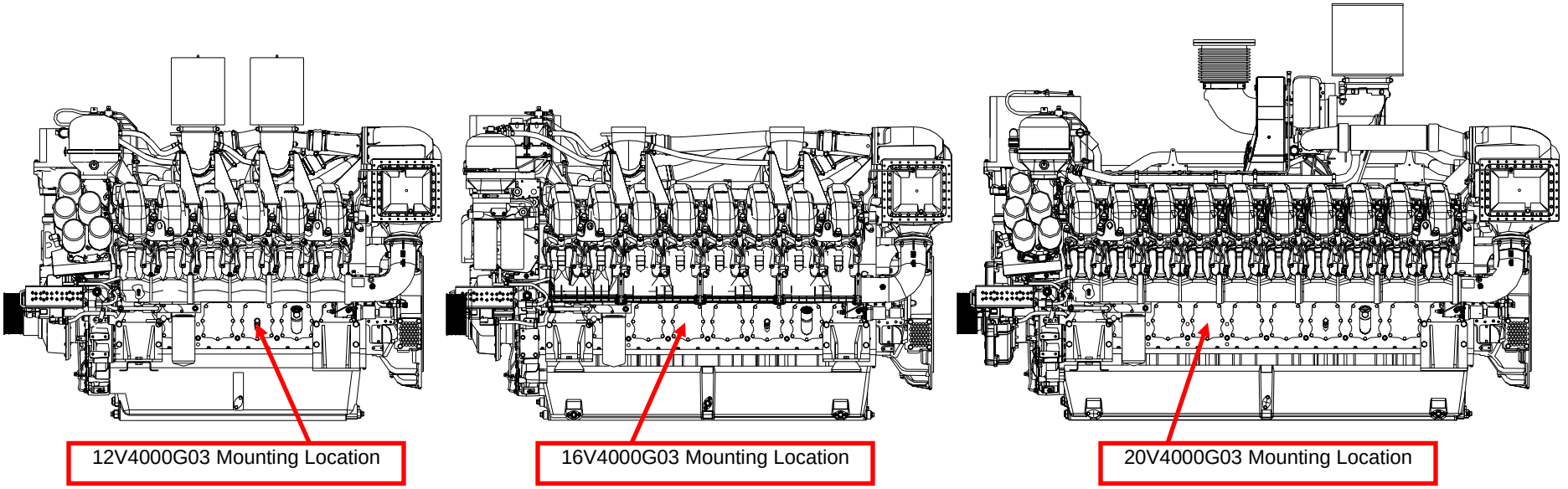
1. Remove dipstick plate with 17mm wrench or socket.



2. Remove block plate with 17mm wrench or socket.

3. Swap engine plate and dipstick plate in their respective locations. Tighten bolts.

Installation Engine Crank Cycle (All Series 4000 Engines)



1. Remove the fuel port interconnect with a 13mm wrench or socket.

2. Loosen the bleeder stem banjo fitting with a 24mm wrench.
3. Remove the bleeder stem assembly with a 27mm wrench.

4. Remove the 33mm plugs with a 14mm hex socket or Allen wrench.

5. Prep all three male 16 JIC to 33mm adapters (assembly part #4, MTU Onsite Energy #88396) by removing the compression rings (not used) and applying lubricant on the o-rings.



6. Install all three male 16 JIC to 33mm adapters (assembly part #4, MTU Onsite Energy #88396) into the above ports and tighten with a 1-5/8” wrench.


7. Install the male 16 JIC to 33mm (90°) adapter (assembly part #8, MTU Onsite Energy #72531) into the above port and tighten with a 1-5/8” wrench, while positioning the adapter pointing straight down with an adjustable wrench.



8. Install the bleeder stem assembly in the above port and tighten with a 27mm wrench.

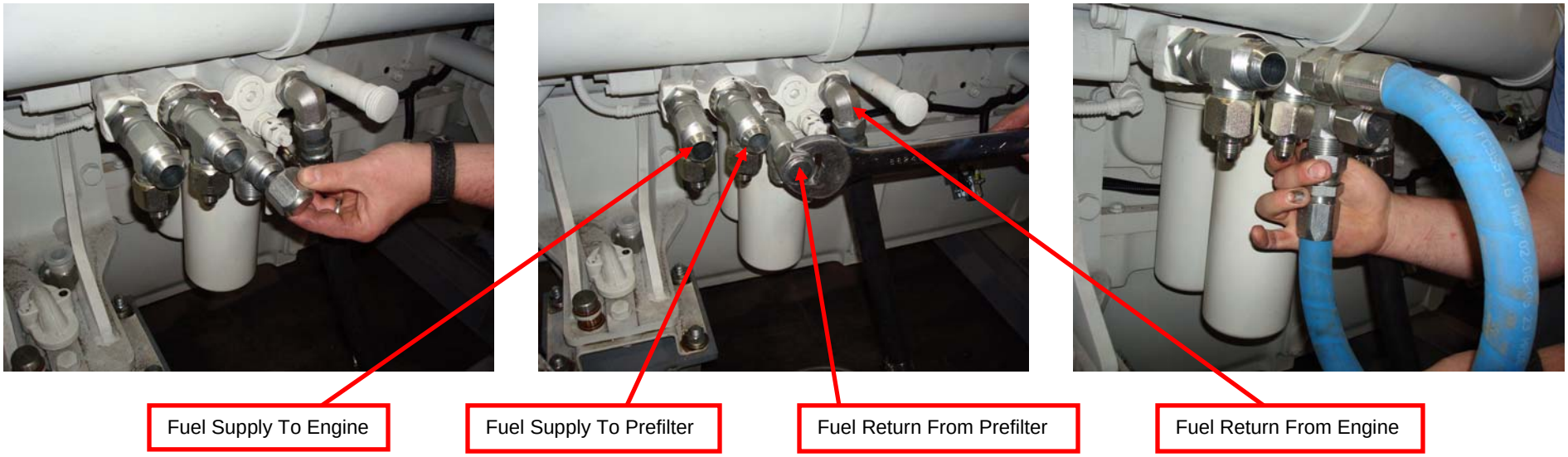
9. Tighten the bleeder stem banjo fitting with a 24mm wrench.



10. Install all three female 16 JIC Swivel to Male 16 JIC tees (assembly part #5, MTU Onsite Energy #88397) onto the previously installed male 16 JIC to 33mm adapters. Tighten with a 1-1/2” wrench.

11. Install the two female 16 JIC to male 8 JIC reducers (assembly part #6, MTU Onsite Energy #88398) in the above locations. Tighten with a 1-1/2” wrench.

No Fuel Water Separator Option



12a. Install female 16 JIC cap (assembly part #7, MTU Onsite Energy #88399) as shown above. Tighten with a 1-1/2” wrench.

13a. Install #16 jumper hose (assembly part #13, MTU Onsite Energy #88403) as shown above. Tighten with a 1-1/2” wrench.
This jumper hose provides the bypass circuit from the fuel supply to prefilter port to the fuel return from prefilter port, which is the same functionality that the OEM fuel port interconnect provided that was removed in step #1.

Fuel Water Separator Option

*See previous page for port designations.

12b. Install female 16 JIC cap (assembly part #7, MTU Onsite Energy #88399) as shown above. Tighten with a 1-1/2” wrench.

13b. The fuel supply to pre-filter port should be attached to the inlet side of the fuel water separator assembly. The fuel return from pre-filter port should be attached to the discharge side of the fuel water separator assembly.

14. Position the close coupled rotary gear pump (assembly part #1, MTU Onsite Energy #86912) on the bracket (assembly part #2, MTU Onsite Energy #88395) as shown above.

15. Assemble the hardware (assembly part #3) as shown above using a 1/2" wrench and 1/2" socket.






16. Apply pipe dope on the male 3/8” pipe to female 3/8” pipe elbow (assembly part #9, MTU Onsite Energy #88400) and install as illustrated.

17. Apply pipe dope on the male 3/8” pipe to male 3/8” pipe elbow (assembly part #10, MTU Onsite Energy #88401) and install as illustrated.

18. Tighten both elbows with an adjustable wrench and orient as illustrated.

19. Apply pipe dope on the exposed end of the male 3/8” pipe to male 3/8” pipe elbow (assembly #10, MTU Onsite Energy #88401).






20. Install the 3/8” check valve (assembly part #11, MTU Onsite Energy #71418) as illustrated, checking that the orientation of the arrow is pointing away from the pump.

21. Install the male 8 JIC to male 3/8” pipe adapters (assembly part #12) as illustrated and tighten both with a 3/4" wrench.

22. Mount the pump motor assembly as illustrated, using the existing engine plate bolts. See page 9 for clarification on mounting location.



23. Install the #8 supply hose (assembly part #14, MTU Onsite Energy #88404) as illustrated above. Tighten both ends with a 7/8” wrench.



24. Install the #8 return hose (assembly part #15, MTU Onsite Energy #88405) as illustrated above. Tighten both ends with a 7/8” wrench.



25. Install the wiring harness starting with the end containing the green wire labeled 9M (-) and black wire labeled CM (+) with an insulation boot on the pump motor (See Note *). Tighten with a 7/16” wrench. Slide the insulation boot over stud to protect the positive (+) connection.



26. On the opposite end of the harness, attach the green wire labeled 9M (-) to the engine starter housing. Attach the white wire labeled 48 (+) to the engine starter solenoid. Tighten with a 3/4" wrench.

****Wires in harness #90058 maybe white but will still be labeled with the appropriate wire markings! ****



27. Detach the smaller solenoid (this solenoid feed the higher current needed for the engine starter solenoid). Feed the remaining white wire labeled 48 (+) through the insulation boot and connect to the same stud as the other wires labeled “48”. These are all battery positive (+) wires. Tighten with a 1/2" wrench and slide the insulation boot back over stud to protect the positive (+) connection.


28. Feed the remaining black wire labeled CM (+ during cranking cycle) through the insulation boot and connect to the same stud as the wires labeled “C”. These are all positively energized during the cranking cycle. Tighten with a 1/2" wrench and slide the insulation boot back over the stud to protect the positive (+) connection.

29. Remount the smaller solenoid and coil up the excess wire length (only needed for 12V4000G03 and 16V4000G03 models).
30. This is the completed setup for the Crank Cycle run sequence for the fuel priming booster kit.
31. See continued instructions on page 23 if Continuous Cycle run sequence is the purchased option.
32. The white wire labeled 9R, if present, may be clipped out of the harness. (Used with the continuous run option only)

Installation Continuous Cycle (All Series 4000 Engines)

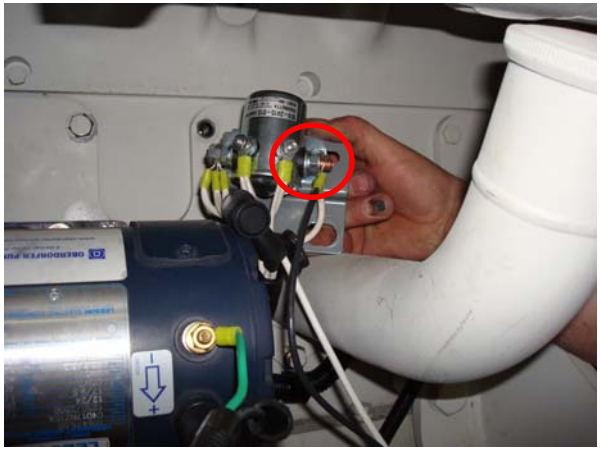
1. Before installing pump install the second start solenoid (46001) with supplied bracket and hardware (see page #3 for hardware and bracket) to the circled engine location using the supplied engine plate bolts and mount the solenoid the same as the other start solenoid.
2. Install the wiring harness starting with the end containing the green wire labeled 9M and a white wire labeled 9R (-) and black wire labeled CM (+) with an insulation boot on the pump motor (See Note *). Tighten with a 7/16” wrench. Slide the insulation boot over stud to protect the positive (+) connection.

3. On the opposite end of the harness, attach the green wire labeled 9M (-) to the engine starter housing. Attach the white wire labeled 48 (+) to the engine starter solenoid. Tighten with a 3/4" wrench.

****Wires in harness #90058 maybe white but will still be labeled with the appropriate wire markings! ****



4. Feed the remaining white wire labeled 48 (+) through the one of the supplied insulation boots and connect to the far left stud (circled in the first picture). Tighten with a 1/2" wrench and slide the insulation boot back over stud to protect the positive (+) connection.



5. Feed the remaining black wire labeled CM through the other supplied insulation boot and connect to the far right side stud (circled in the first picture) (See Note*). Tighten with a 1/2" wrench and slide the insulation boot back over the stud to protect the positive (+) connection.
6. Install the remaining white wire labeled 9R to the smaller post closet to the larger far right post (circled in the 3rd picture above).
7. This is the completed setup for the Continuous Cycle run sequence for the fuel priming booster kit.

****Wires in harness #90058 maybe white but will still be labeled with the appropriate wire markings! ****

Model Change Records

Date: 9/3/2008
Change: Added installation manual part number to page 3.

Job Traveler: N/A
By Who: Chris Vermillion Approved: Tony Rolfes

Date: 10/23/2008
Change: Added #18 to the BOM list for continuous run option. Added notes regarding the wire color change for the new harness revision. Also added work instruction notes for location to install second solenoid for continuous run option. Changed #17 in BOM to reference supplied electrical harness drawing for BOM.

Job Traveler: N/A
By Who: Chris Vermillion Approved: Tony Rolfes

Date:
Change:

Job Traveler:
By Who: Approved:

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