FORKLIFT

SERVICE MANUAL

HBR14-7

HYUNDAI

MidWestTech | Hyundai HBR14-7 Forklift Service Manual | Publication HBR14-7

Order the manual at mid-west-tech.com >

CONTENTS

SECTION 1 GENERAL

Group 1 Safety hints 1-1
Group 2 Specifications 1-5
Group 3 Periodic replacement 1-16

SECTION 2 REMOVAL & INSTALLATION

Group 1 Structure 2-1
Group 2 Removal and Installation of Unit 2-2

SECTION 3 POWER TRAIN SYSTEM

Group 1 Structure and operation 3-1
Group 2 Troubleshooting 3-4
Group 3 Disassembly and assembly 3-6

SECTION 4 BRAKE SYSTEM

Group 1 Structure and function 4-1
Group 2 Operational checks and troubleshooting 4-9
Group 3 Test and adjustment 4-11

SECTION 5 STEERING SYSTEM

Group 1 Structure and function 5-1
Group 2 Disassembly and assembly 5-3

SECTION 6 HYDRAULIC SYSTEM

Group 1 Structure and function 6-1
Group 2 Operational checks and troubleshooting 6-18
Group 3 Disassembly and assembly 6-22

SECTION 7 ELECTRICAL SYSTEM

Group 1 Component location 7-1
Group 2 Electrical circuit 7-2
Group 3 Electric components 7-3

SECTION 8 MAST

Group 1 Structure 8-1
Group 2 Operational checks and troubleshooting 8-6
Group 3 Adjustment 8-9
Group 4 Removal and installation 8-12

MidWestTech | Hyundai HBR14-7 Forklift Service Manual | Publication HBR14-7 Order the manual at mid-west-tech.com >

GROUP 2 REMOVAL AND INSTALLATION OF UNIT

Remove and install following units as explained in the flow chart.

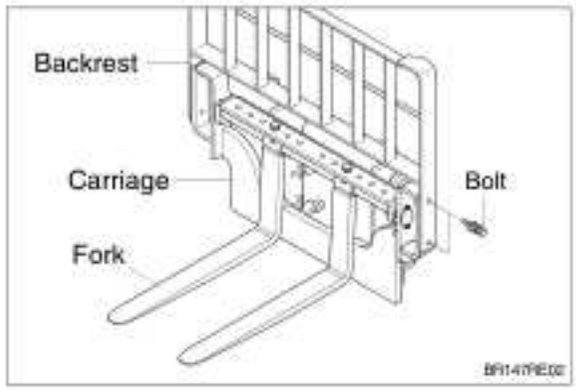
1. MAST

1) REMOVAL

Backrest & fork → Carriage → Piping → Mast

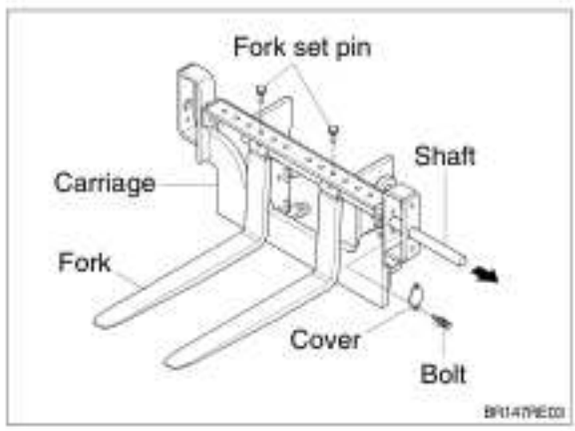
(1) Backrest

① Remove bolts securing backrest to fork carriage. Lift backrest straight up and remove it from carriage.



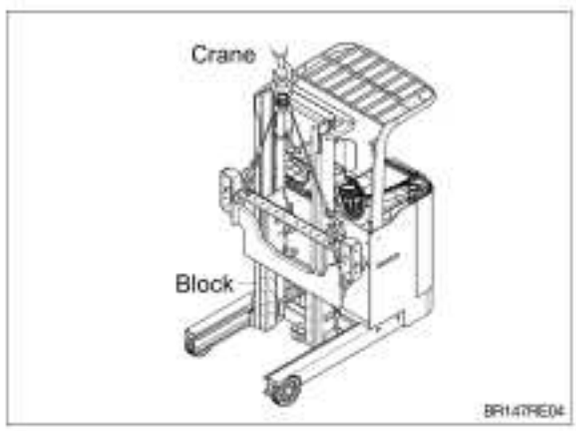
(2) Forks

① Remove shaft cover and bolt.
② Remove fork set pin and then draw out the shaft.
③ Carefully remove forks one by one.



(3) Carriage

① With the mast vertical, raise the carriage high enough to place blocks under the load forks. This is done to create slack in the load chains when the carriage is lowered. Lower the carriage all the way down to the floor. Make sure the carriage is level, this will prevent any binding when the mast is raised.



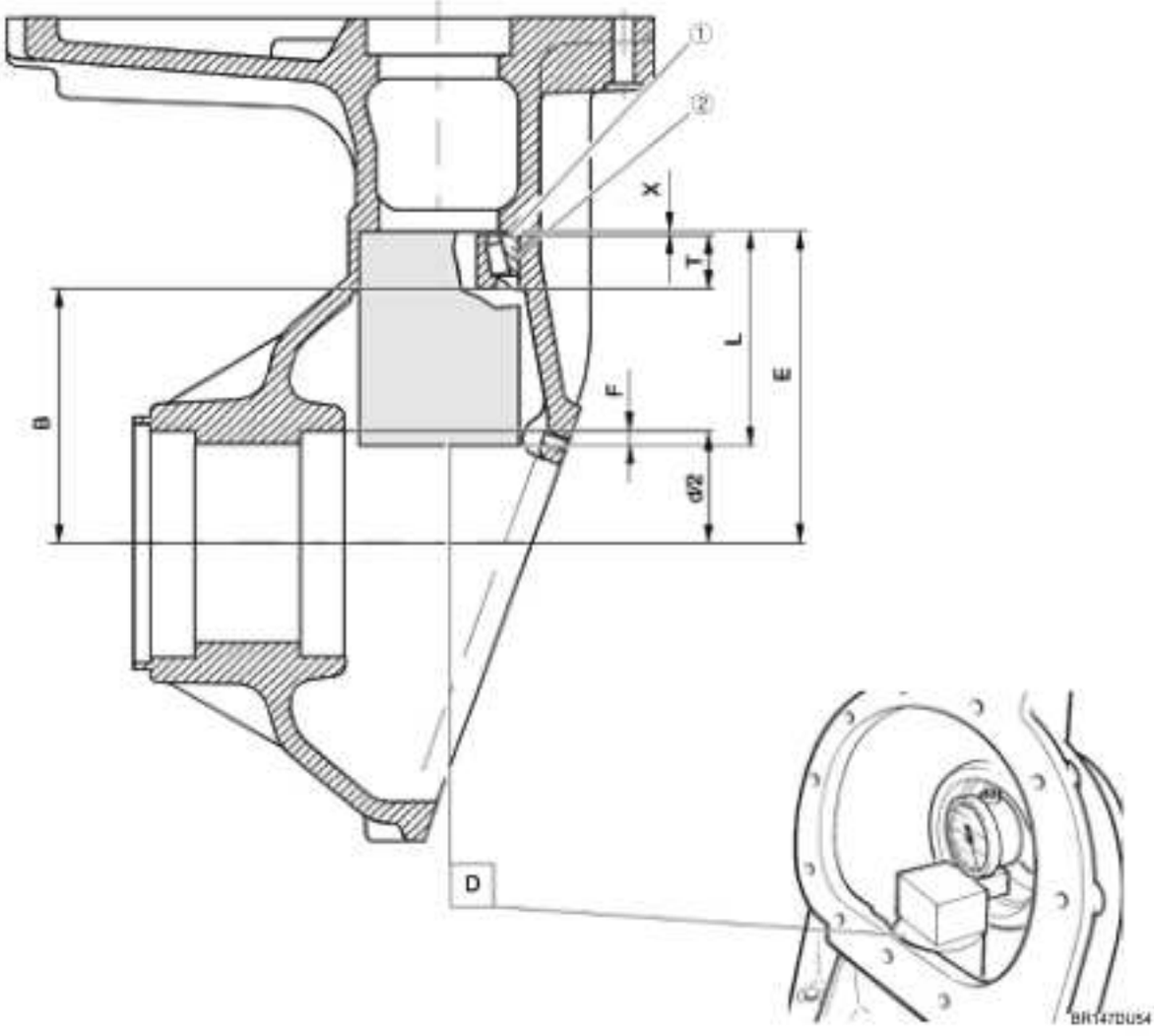
MidWestTech | Hyundai HBR14-7 Forklift Service Manual | Publication HBR14-7 Order the manual at mid-west-tech.com >

(1) DETERMINATION OF INSTALLATION DIMENSION FOR BEVEL PINION SHAFT

- The bevel gear set, consisting of bevel gear shaft and bevel gear, is provided with certain installation dimensions. The installation dimension of the bevel pinion shaft is 100.00mm.
  The correct adjustment of the bevel pinion shaft is required for an exact setting of the contact pattern and the torsional backlash of the gearing.
  Shim ring thickness and the correct adjustment of the bevel pinion shaft respectively can be determined acc. to the following method :

  - Place measuring bush **D** into the housing-bearing bore and measure dimension F.
  - Determine housing dimension **E** by thefollowing equation. **E = L - F + d/2** which means :

  L = Length of the measuring bush **D**(dimension marked on it 77.50mm)
  F = Difference dimension from bearing seat diameter to front face measuring bush **D**
  d/2 = Measure housing borehole
  By means of the equation : **X = E - B - T** it is possible to calculate the thickness of the shim rings(①).
  Which means :
  B = Installation dimension of bevel pinion shaft is 100.00mm
  (Factory setting of the installation dimension with a tolerance of ±0 is marked on the bevel pinion shaft)
  T = Bearing width of the bearing(②)



MidWestTech | Hyundai HBR14-7 Forklift Service Manual | Publication HBR14-7 Order the manual at mid-west-tech.com >

(14) The controller must be used with a line contactor as indicated in the wiring diagrams.

(15) As blow-out magnets are fitted to contactors(except 24V) ensure that no magnetic particles can accumulate in the contact gaps and cause malfunction. Ensure that contactors are wired with the correct polarity to their power terminals as indicated by the + sign on the top moulding.

(16) The controller must NOT be used with permanently-connected on-board chargers or damage to the system may result.

5) TECHNICAL SPECIFICATIONS

(1) Electrical

① Voltage specifications

Model	Voltage	Nominal Battery	Absolute maximum operating voltage
PP×4×	48V Units	24 - 48V	14.5 - 75V
PP×8×	80V Units	72 - 80V	43.0 - 100V

② Current specifications

Model	Power	Current limit (1 min)	Safe operating area (SOA)	Continuous current 1 hour rating. Unit mounted on an aluminum base-plate 780×380×10mm, at 20°C ambient.
PP344P	48V 450A	450A	30 - 60%	135A
PP246M PP346P	48V 650A	650A	30 - 60%	200A
PP743	48V 350A	350A	30 - 60%	117A
PP744	48V 425A	425A	30 - 60%	167A

③ Switching frequency

16kHz Traction / Regen / Pump Drive and 6kHz plug braking.

④ Electrical isolation

Enclosure to any live part = 1kV. Controller internal insulation specified at > 10MΩ @ 500V DC. Dielectric strength 1000V@50Hz for 1Minute.

⑤ Battery polarity

A Line contactor driven from the keyswitch, with a 2A diode in series with the coil, will prevent line contactor closure if the battery positive and negative connections are reversed.

(2) Environmental

① Protection-logic(Powerpak)

The enclosure is protected to IP66.
1st digit(6) = Protection against dust ingress.
2nd digit(6) = Protection against high pressure jets of water in any direction.

② Protection-power frame(Powerpak)

The enclosure is protected to IP55.
1st digit(5) = Limitted dust ingress permitted.
2nd digit(5) = Protection against low pressure jets of water in any direction.
Limited ingress permitted.

③ Vibration

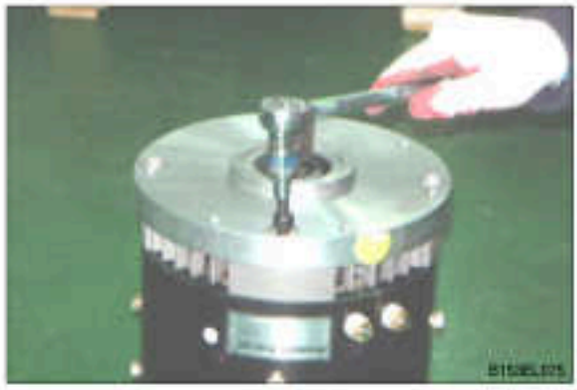
6G, 40-200Hz for 1 hour, in x, y and z planes.

④ Operating temperature

-30°C to +40°C ambient around controller.

MidWestTech | Hyundai HBR14-7 Forklift Service Manual | Publication HBR14-7 Order the manual at mid-west-tech.com >

(6) Remove 4 bolts on the drive side endbell, using L wrench.



(7) Remove armature and drive-side endbell by lifting up straightly.



Armature assembly, drive side endbell and field & frame assembly after disassembling from motor.



(8) Remove 4 bolts on the commutator side endbell.



MidWestTech | Hyundai HBR14-7 Forklift Service Manual | Publication HBR14-7 Order the manual at mid-west-tech.com >

(9) Put the upper balance plate on top of the gear set. Position is rotation sensitive.



(10) Prepare the shaft seal for assembly. Use a proper assembly fixture.



(11) The shaft seal should be packed with some grease.



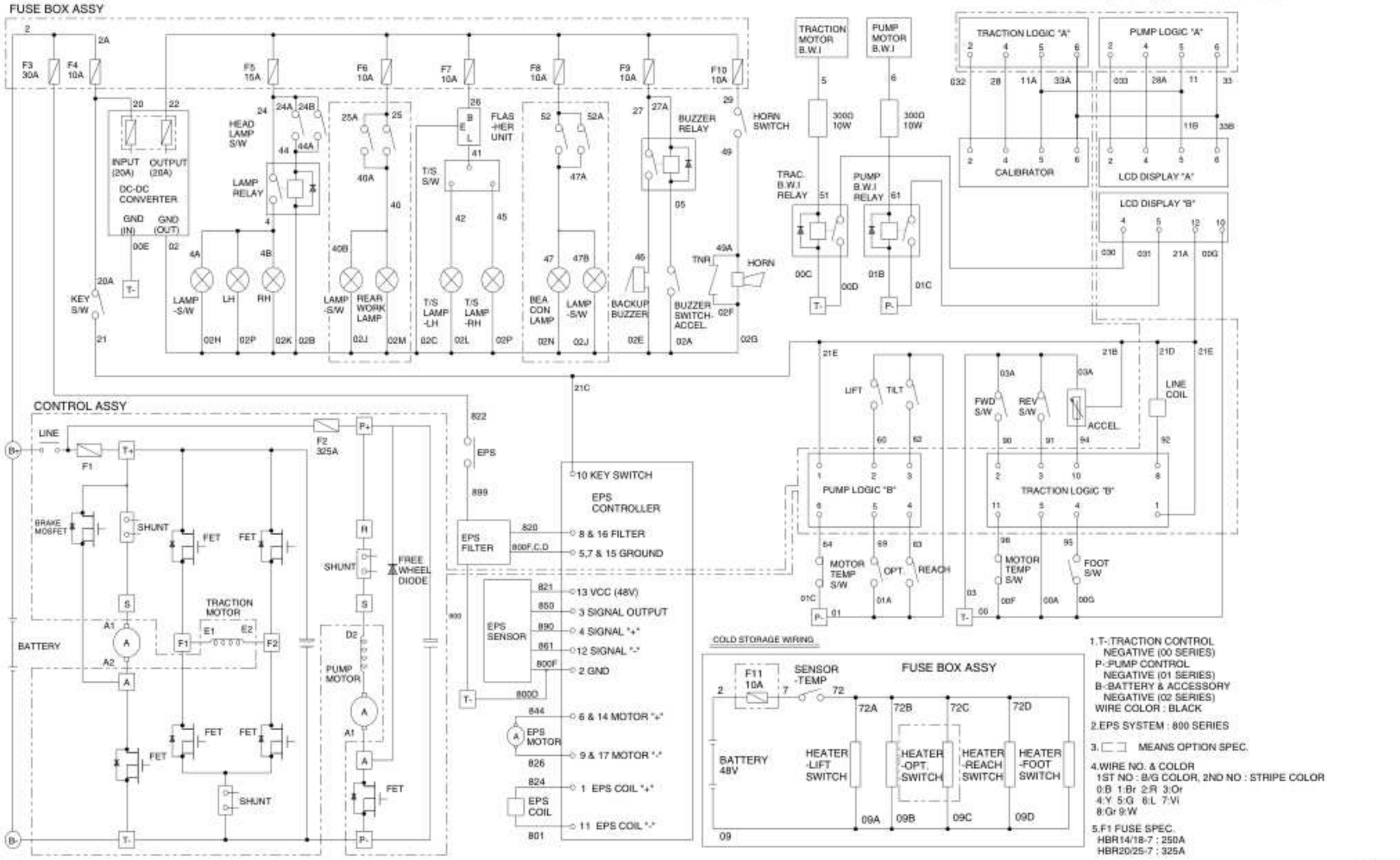
(12) Press in the shaft seal to bottom of the shaft seal bore.



MidWestTech | Hyundai HBR14-7 Forklift Service Manual | Publication HBR14-7 Order the manual at mid-west-tech.com >

GROUP 2 ELECTRICAL CIRCUIT

HBR14-7(-#0006), HBR15-7(-#0018), HBR18-7(-#0022)
HBR20-7(-#0023), HBR25-7(-#0010)



1. T-:TRACTION CONTROL NEGATIVE (00 SERIES)
   P-:PUMP CONTROL NEGATIVE (01 SERIES)
   B-:BATTERY & ACCESSORY NEGATIVE (02 SERIES)
   WIRE COLOR : BLACK
2. EPS SYSTEM : 800 SERIES
3. ☐☐ MEANS OPTION SPEC.
4. WIRE NO. & COLOR
   1ST NO : B/G COLOR, 2ND NO : STRIPE COLOR
   0:B 1:Br 2:R 3:Or
   4:Y 5:G 6:L 7:Vi
   8:Gr 9:W
5. F1 FUSE SPEC.
   HBR14/18-7 : 250A
   HBR20/25-7 : 325A

BR147EL02

MidWestTech | Hyundai HBR14-7 Forklift Service Manual | Publication HBR14-7
Order the manual at mid-west-tech.com >