

**DIRECTOR GENERAL BORDER ROADS**  
**GENERAL MAINTENANCE INSTRUCTION NO 63.**  
**ON**  
**PRESERVATION OF MT SPARES**

**Aim**

1. This instruction lays down the details of preservatives requires for preservation of MT Spares.

**Action by**

2. (a) Stores Divisions, Eastern and Western Base Workshop.
- (b) Field Workshops
- (c) User Units

**Details**

3. Details covering the following aspects in respect of preservation of MT Spares have been tabulated in Appendix 'A' to this instruction: -

- (a) Preservatives required for preservation of MT Spares.
- (b) Method of application of the Preservatives.
- (c) Proper packing of the preserved Spares.

**Procurement of Preservatives**

4. Procure these as Cat 'B' Stores in accordance with para 3 (i) Chapter IV of BR Regulations.

**PRESERVATION OF MT SPARES**

S/No	Store	Preservative	Defence Store Cat No	Method of application of preservative	Wrapping	Method of packing	Remarks
1	Cylinder liners	Protective PX-2(Composition Rust Preventive - CRP) Croase LG-280	8030-000004 9150-000010	Dip, Brush or Spray or Smear	Paper crease resisting if preserved with grease. Wrapping not necessary if preserved with PX-2. If it is to be done for any special reasons it should be done only after the preservative film has dried. Paper Kraft(immitation) Waxed Grade-1Normal(Cat No. IHD-0126_ should be used.	Wrap individual item and pack them in carttons . Suitable number of carttons should be packed in boiled fibre board boxes(8FB)or CasesWood Packing(CWP). Packing method I-O	Preservation should be removed before taking the store in use, with Kerosene or any other suitable solvent.
2	Bolts	--do-- (Except small bolts which should be preser ved with oil preservative Engine (SAE-B6:C7)	--do_ E3 B39150-000073	--do--	--do--	Gunny bags/SFB/CWP in order of performance	Complete removal of proservative not necessary.
3	Crank Shafts	Protective PX-2(Composition Rust Preventive - PX2	8030-000004	Dip, Brush or Spray	Not essential	Metled I-C in CWP	
4	Cam Shaft	--do--	--do--	--do--	Supporting bearing surfaces to be wrapped with Grease resisting paper. Multipal folds to be taped	--do--	

5	Gears	--do--	--do--	--do--	As per item 1 above	As per item 1 above	Remove preservative before use. Meticulous cleaning not always necessary.
6	Pistons	Protective PX-II( Preservative Mineral Jelly Beoswax)	8030-000009	Dip in or Brush with molten preservative(temperature 77 <sup>0</sup> C to 93 <sup>0</sup> C) to give 1 mm thick film	Wrap in Grease Resisting paper.	Metled I-C in carton and SFB/CWP	
7	(a) Oil Seals ( With felt lining)	--do--	--do--	--do--	--do--	--do--	
	(b) Oil Seal( With Rubber lining	Protective PX-12( Preservative for metal components containing rubber)	8030-000010	--do--	--do--	--do--	
8	Engine Cylinders	Protective PX-1 or Grese LG-280. Exterior surface should be painted with paint RFU heat resisting black	8030-000003 8010-000263	Dip spary brush or flow coating	--do--	Method I-C in CWP	Removal of the preservative not necessary before taking the store in use. Defficult load.
9	Differential Assy	Protective PX-II( Preservative Mineral Jelly Beoswax)	8030-000009	Dip brush in Molten PX-II	--do--	--do--	Difficult load. Remove preservative before use meticulous cleaning not always necessary.

10	Petrol Tanks	Oil engine Preservative SAE30 Grease LG- 280 Paint RFU for equipment air drying, brushing/spraying Olive green	9150-000073 9150-000010 8010-000245	Fluid internal surfaces with oil. Seal all orifices. Grease the threads . Paint external surfaces.		Method I-C in CWP	
11	Starter Motor	Grease LG-280	9150-000010	Smear carbon brush spring, gear and exposed shaft with grease.	Cover with mouldable wax wrap and wax dip	Method -II Pack in carton and then in SFB/CWP	Removal of preservative not necessary.
12	Dynamo	--do--	--do--	--do--	--do--	Method I-C . Pack in carton and then in SFB/CWP	--do--
13	Regulators (Pressure)	Grease LG-280 or Protective PX-2	9150-000010 8030-000004	Preserve expressed ferrous parts with Grease or PX-2	Wrap in Grease Resisting paper if preserved with Grease.	Method I-C carton, CWP	
14	Regulators (Voltage)	No treatment	—	—	Wax Paper	Method II carton, CWP	
15	Distributor	Oil engine Preservative SAE30	9150-000073	Distributor , carbon brush spring , spindle, contact breaker plate and points , all parts of automatic ignition control gear to be lightly coated with oil.Excess preservative not to be used.Fold back the wire of the distributor	Wax Paper	Method I-C carton, CWP	

16	Propeller Shaft	Protective PX-II	8030-000009	Dip splined ends in molten protective PX-II	Wrap in grease resisting paper, overwrap in mouldable waxed wrap.	incarton, CWP	
17	Clutch	Grease LG-280	9150-000010	All splined and moving joints to be greased during assembly.	Wrap in grease resisting paper	Metled I-C carton / SFB	Grease should neither be heated nor mixed with a solvent to thin it
18	Carburettor	At temperature above 0 <sup>0</sup> C: Oil presertative Engine SAE-30 at temperature below0 <sup>0</sup> C but not below minus 40 <sup>0</sup> C: Oil presertative Engine SAE-10 Grease LG-280	9150-000073 9150-000072 9150-000010	Spray oil taking care that both side of the butterfly have been coated with oil , grease and external joints. Afect assembly brush all nuts and bolts with grease.	Wrap with mouldable waxed wrap and secure in position carton,SFB with adhesive tape.		
19	Big End Main Bearing	Protective PX-II or Vapour corrosion inhibitor(VGI) coated paper	8030-000009 Trade( See at the end of this table)	Pair up bearing position and dip preservative wrap in VGI coat	—	Metled I-C CWP	—
20	Ball Roller Bearing	--do--	--do--	Dip bearing in mainted Protective PX-II wrap in VCI coat-2	—	Metled I-C CWP	
21	Brass, Gun Metal and Branze parts	No preservative treatment	—	—	—	—	
22	Brushes Metal Composite Metal & rubber	(a) Protective PX-2 (b) Protective PX-12	8030-000004 8030-000010	(a) Dip in PX-2 (b)Dip in molter	Wrap in Grease resisting paper	Method I-C Carton	

23	Brake Drum	Protective PX-2	8030-000004	Dip,spray or brushes	—	—	—
24	Brake Shoes	Protective PX-2	8030-000004	Brush Ferrous parts	Wrap Dipstick with grease resisting paper. Wrap other parts in grease resisting paper	Method I-C Carton/SFB	
25	Cylinder blocks	Paint RFU heat resisting,Brushing/spraing,black grease LG-280 Protective PX-2	8010-000263 9150-000010 8030-000004	Paint exterior, Grease cylinder oil dip valve seat and journal cam shaft bearing housing and bearingmain and refit interior crankshaft manifold dry and other machine mentioned should be sprayed with protective , piston fitted, grease quality and insert	—	Method I-C/SFB	Surface should be cleaned before applying the preservative . Leather should be neither be acked in water nor dried in sun nor neartopen fire. Thick foam of soap or dubbin as the case may be should rubbing . Excess preservative should be wiped out and the store should be left in air , in shade for 1 or 2 days and then packed.

26	Cylinder Head (a) Side ValveType (b) Overhead valve type	Paint RFU heat resisting,Brushing/spraing,black grease LG-280 Protective PX-2	8010-000263 9150-000010 8030-000004	(a) Paint exterior, Grease all then Hand brush or exposed machine with PX-2 (b) Fill valve guide , paint exterior, preserve exposed part with PX-2	(a) Wrap in Grease resisting paper (b) wrap in kraft paper	Method I-C SFB/CWP	
27	Chromium parts Nickle plated parts	Protective PX-2 or Grease LG-280	8030-00004 9150-000010	Spray/brush with PX-2 or smear with	Wrap in grease resisting paper		
28	Copper pipes	Normally no preservative treatment required					
29	Crown Wheel	Protective PX-2	8030-000004	Brush/Dip/Spray			
30	Crank Case	Paint RFU Finishing,War equipment,air drying,brushing/spraying olive green	8010-000245	Paint unmatching in working surfaces in molten or PX paper	Luable wrap in grease resisting paper, folds on opposite of package	Method I-C carton,SFB	—
31	Sumps (a) Ferrous (b)Non Ferrous	(a) Protective PX-2 Grease LG-280 (b)	8030-000004 9150-000010	(a)Preserve under surface with PX paper (b)Studs and threads holes should be	--do-- Wrap in kraft paper	Method-0 carton,SFB/CWP	
32	Injector Assy	Lubricating oil Grease LG-280	9150-000010	Filled with lubricating oil. Seal orifice protect nozzles mechanical damage exterior with grease PX-2	--do-- Wrap in Grease resisting paper	Method-0 carton,SFB/CWP	Remove preservative before use with oil kerosene superior

33	Fuel Injection pumps	Paint RFU Finishing, War equipment, air drying, brushing/spraying olive green		8010-000245	Fill sump and fuel with lubricating with PX-2. Appropriate to pump off all orifices externally. Grease surfaces stick . Grease oxtere coupling	Cover top phase of blocks of Grease resisting paper. Cover open end of crankshaft with greased paper.	As per item 2.	—
34	Leather parts	Soap Laundry ordinary	Dibbin	7930-000016 8030-000047	Stores where shape remove stiffness is to grease tained should be ved with soap lau where leather is parts to be soft and surfaces preserve with dibbin or brushed.	Cover top phases of blocks with two thickness of Grease resisting paper. Cover open end of crankcase with greased paper.	As per item 8	Remove preservative before use with oil kerosene superior
35	Universal Joints	(a) Protective Grease LG-280 (a) All Metals (b) Fabric (c) Rubber	(b) (c ) French Chalk	8030-000009 9150-000010 8030-000059	(a) Dip in or brush surface and molten PX-2 (b) Grease metal ©Smear french			
36	Pulleys	Grease LG-280 priming Red Oxide or zink chromate universal, synthetic, brushing spraying. Paint RFU finishing for equipment brushing/spraying olive crown.	Paint RFU	9150-000010 8010-000110 8010-000245	Bores should be greased . External surface to be painted.	Kraft paper if protected with PX-2 Paper grease resisting if protected with grease. Wrap in kraft paper or gunny. Wrap in kraft paper	Method I-C Carton	

37	Road Springs	Protective PX-II	8030-000009	Dip in or brush molten protective	Wrap in Grease resisting paper	Method I-C CWP
38	Sprockets Chain( Without bearings)	Protective PX-2	8030-000004	Dip in protective PX-2	Protect teeth by mouldable waxed wrapping. Wrap in grease resisting paper	Method I-C , Cartoon,SFB/CWP

Notes on Methods of packing and painting : Based on climatic and other considerations the methods of Packing are classified under five main types described below :-

Method -O : A method which employs no waterproof barrier, nor is the store treatment with a temporary protective

Method -I : A method which employs no waterproof barrier, but the store treatment with a temporary protective

Method I-C : A method which employs no waterproof barrier, The store may or maynot be treatment with a temporary protective

Method - I-A : A method which employs no watervapur proof barrier, The store may or may not betreatment with a temporary protective

Method -II : A method which employs a disiccant(enclosed together with the store) withen a watervapour proof barrier which has a specified water vapour transmission rate.

Painting : Surface to be painted thoroughly cleaned of dirt, dust, grease,rust and old paint. Clean metal surface should be first given one or two coats of primer paint and then a coat of finished paint. Second coat should be applied after the first has thoroughly dried, usually after 24 hours.

Abbreviation : SFB - Solid Fibre Board Box

CWP : Case Wood Packing

Types of Load : For packing purposes the store are classified into three groups :-

(a) Easy Load : Stores of moderate density , with the mass evenly distributed , and packet in primary containers which completely fill an outer container and thereby give support to all its faces , eg match boxes, tea chests

(b) Average Load : Supplies of moderate density with some irregularity in shape but with an even mass distribution either packed directly into the outer case of subjected to cartooning wrapping or packing in straw board pr fibre board container, or glassware.

[c] Difficult Load : Supplies/ stores of high dencity and irregular shape with the mass concentrated or otherwise requiring a high degree of protection . Supplies / stores in this category provide no support for the container and may on the other hand tend to apply concentrated forces to the surfaces of the container except to the extent that racking , bracing and bolting help to strengthen the case or render the item immobile in the case, eg crankshaft, rear axle etc.

Vapour Corrosion inhibitor (VCI) : This is a volatile chemical developed by the Defence Reserch Labouratory (Materials) Kanpur . The chemical vapourises and protect ferrous metal surfaces with which the vapour come in contact. The vapours reach even otherwise inaccessible metal surface . VCI does not react with or remove moisture or oxygen which are responsible for corrosion but inhibits their corrosive action . As long as VCI vapours are present in the atmosphere surrounding the ferrous stress( Provided the atmosphere is not highly acidior alkaline) they give them effective protection against corrosion. For this reason stores should be wrapped reasonably airtight but harmetic sealing is not necessary. In a reasonably airtight package VCI gives protection for 4-5 years. . VCI may be used (a) as a powder (b) as a solution (c) as a coating on a wrapping material.

VCI coated paper are supplied by the following firms :-

1. M/S Technological Production co-operative society', 8/167  
Arya Nagar , Kanpur-2
2. M/S Protective Packing Alankar Cenema Building , Poona-1