

RECOMMENDED MATERIAL HANDLING EQUIPMENT					
Sl	Type	Size/capacity	Qty		Remarks
(a)	Full Electric Stacker	Minimum 3000 mm Fork Length/ 1.5 ton	2		For Light and medium stores transportation
(b)	Injection moulded Pallets	1500 x 1200 mm/ 1 ton	16		
(c)	Wheeled litter bins	Volume up to 500 ltrs	2		
(d)	Electric cart	3.5 x 2 x 2 mtr with carrying capacity 2 persons plus 500 Kg.	1		
RECOMMENDED SUPPORT SYSTEM					
Sl	Description	Size/capacity	Qty		Remarks
(a)	Power back up (DG set)	200 KVA/ 160 KW	1		
(b)	Split AC	4 ton each	26		
(c)	Work stations (for two personnel)	3 mtr x 1.2 mtr x 1mtr with provision of suitable file cabinets on either side and two PC station	4		
(d)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters and central alarm within built CO ₂ extinguisher.	1 set		
(e)	CCTV cameras/ monitors	IP Camera with digital zoom and IR capability	2 set		
(f)	Miscellaneous Work	Flooring, wall finish, server room, shed for DG set	-		

PHASE – II

1.2 **PHASE – II**. During second phase of project implementation, store houses which are not densely occupied with stores will be taken up for modernisation. In this phase TU stores, Heavy store-I, IL-38 SD new building and Heavy store – II (proposed Rotable section) including scrap yard will be covered. The details of equipment recommended for each store house are as follows: -

(a) **TU 142M Store House:** This store house (P-25 of 1995 construction) consists of ground floor, first floor with rear half section for heavy store. The store house has approx 15000 items by type of various sizes. The front half portion of ground floor has already a compactor for storage of small / light items and steel racks on first floor. However, all heavy and large items are kept on ground on top of each other and require a systematic racking unit of heavy duty in nature with suitable MHE. The procurement, installation and commissioning of following storage systems and Material Handling Equipment along with support facilities is recommended to be taken up in second phase of the project:-

(i) **Ground Floor (Heavy stores)**

EXISTING FACILITIES							
Overall size (in mtr)	Usable Area (in mtr)	Total Height (in mtr)	Usable Height (in mtr)	EOT Crane	Storage Facilities	AC/ NON-AC	Remarks
44.4 x 11.8	43 x 10.5	7.5	6.5	Yes	Nil	Non AC	Heavy stores/ boxes



PROPOSED STORAGE SOLUTIONS					
SI	Storage System	Type/ Model	Size (in mm)	Qty	Remarks
(a)	Heavy duty racking systems	Mobile Cantilever Racking Unit with decking panels	3600x2600 x 6500	04	For storage of approx. 252 to 400 boxes
(b)		Fixed Cantilever Racking Unit with decking panels	3600x1500 x 6500	02	
(c)		Mobile Heavy Duty Rack with Deck Panel Unit	3600x2500 x 6500	04	
(d)		Mobile Heavy Duty pallet Racking	3500x2500 x 6500	02	
RECOMMENDED MATERIAL HANDLING EQUIPMENT					
SI	Type	Size/capacity	Qty	Remarks	
(a)	Full Electric stacker	Minimum Fork Length 3000 mm /1.5 ton	01	For heavy stores transportation	
(b)	Cage Pallets(Collapsible)	1000 x 1000 x 1000 mm /1 ton	40		
(c)	High Reach lift truck	Lift Height 8000mm /2 ton	01		
(d)	Injection moulded Pallets	1500 x 1200 mm/ 1 ton	20		
(e)	Wheeled litter bins	Volume up to 500 ltrs	02		
RECOMMENDED SUPPORT SYSTEM					
SI	Description	Size/capacity	Qty	Remarks	
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm	1 set		
(b)	CCTV cameras/ monitors	IP Camera with digital zoom and IR capability	1 set		
(c)	Bird proofing	Bird Deterrent Gel (supply & application)	600 Kg		

(ii) **First Floor**

EXISTING FACILITIES							
Overall size (in m)	Usable Area (in m)	Total Height (in m)	Usable Height (in m)	EOT Crane	Storage Facilities	AC/ NON-AC	Remarks
18.7 x 12	17 x 10.5	5	4.5	No	Steel racks	Non AC	Light/ Medium stores
PROPOSED STORAGE SOLUTIONS							
SI	Storage System	Type/ Model	Size (in mm)	Qty	Remarks		
(a)	Compactors	Double face mobile storage system	4650x1200x 4500	16	For Light and Medium stores (not so fast moving items)		
(b)		Double face fixed storage system	4650x1200x 4500	02			
(c)		Single face fixed storage system	4650x 600x 4500	02			
RECOMMENDED MATERIAL HANDLING EQUIPMENT							
SI	Type	Size/capacity	Qty	Remarks			
(a)	Hand Pallet Trucks	Minimum Fork Length 1500 mm / 1 ton	01	For light stores transportation			
(b)	Order Picker	Lift Height: 3000 mm/0.5 ton	01				
(c)	Injection moulded Pallets	1200 x 1000 mm/ 1 ton	10				
(d)	Wheeled litter bins	Volume up to 500 ltrs	01				
RECOMMENDED SUPPORT SYSTEM							
SI	Description	Size/capacity	Qty	Remarks			
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm	1 set				



(b)	CCTV cameras/ monitors	IP Camera with digital zoom and IR capability	1 set		
(c)	Bird proofing	Bird Deterrent Gel (supply & application)	600 Kg		
(d)	Work stations (for two personnel)	3 m x 1.2 m x 1m with provision of suitable file cabinets on either side and two PC station	02		

(b) **Heavy Duty Store House - I.** Heavy duty store -I (P-26, constructed in 1995) consist of heavy and large size boxes from all store houses. The weight of these boxes ranges from 500 Kg to 5000 Kg and the handling / stowage of same is a labor intensive and time consuming job. These boxes are kept on ground on top of each other and require a systematic racking unit of heavy duty in nature with suitable MHE. The procurement, installation and commissioning of following storage systems and Material Handling Equipment (MHE) along with support facilities is recommended to be taken up in second phase of the project:-

EXISTING FACILITIES							
Overall size (in mtr)	Usable Area (in mtr)	Total Height (in mtr)	Usable Height (in mtr)	EOT Crane	Storage Facilities	AC/ NON-AC	Remarks
44.3 x 11.95	42 x 10	7.5	6.5	Yes	Nil	Non AC	Heavy stores
PROPOSED STORAGE SOLUTIONS							
SI	Storage System	Type/ Model	Size (in mm)	Qty			Remarks
(a)	Heavy duty racking systems	Single faced fixed unit with decking panel	7400 x 1500 x 6400	04			For big boxes/ Heavy stores of all aircraft
(b)		Mobile Heavy Duty Rack with Deck Panel Unit	7400 x 2500 x 6400	08			
(c)		Mobile Heavy Duty pallet Racking.	7400 x 2600 x 6400	04			
(d)		Cantilever Fixed Racking	7400 x 2600 x 6400	06			
RECOMMENDED MATERIAL HANDLING EQUIPMENT							
SI	Type	Size/capacity	Qty				Remarks
(a)	Narrow Aisle Forklift	Lift Height 6000 mm/ 2 ton	01				For handling heavy stores
(b)	Steel Pallets	1200 x 1200 mm/ 2 ton	100				
(c)	Multi Directional Forklift	Lift Height 6000 mm/ 5 ton	01				
(d)	Injection moulded Pallets	1500 x 1200 mm/ 1 ton	40				
(e)	Wheeled litter bins	Volume up to 500 ltrs	4				
RECOMMENDED SUPPORT SYSTEM							
SI	Description	Size/capacity	Qty				Remarks
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm	2 set				
(b)	Work stations (for two personnel)	3 mtr x 1.2 mtr x 1mtr with provision of suitable file cabinets on either side and two PC station	2				
(c)	Bird proofing	Bird Deterrent Gel (supply & application)	1200 Kg				

(c) **Rotable Stores (Present Heavy Duty Store No – 2):** This storehouse (P-27, constructed in 1995) will be provisioned for storage of rotatables received ex units and awaiting dispatch for repairs at various repair agencies in India and abroad. These items are fast moving ones and speedy stowage / removal of same is paramount. The procurement,



installation and commissioning of following storage systems and MHE along with support facilities is recommended to be taken up in second phase of the project:-

EXISTING FACILITIES							
Overall size (in m)	Usable Area (in m)	Total Height (in m)	Usable Height (in m)	EOT Crane	Storage Facilities	AC/ NON-AC	Remarks
27.9 x 14.4	26.5 x 13	6/3.8	5.4/3.2	No	Nil	Non AC	Heavy stores
PROPOSED STORAGE SOLUTIONS							
SI	Storage System	Type/ Model	Size (in mm)	Qty			Remarks
(a)	Heavy duty racking systems	Mobile Cantilever Racking Unit with decking panels	7400 x 2600 x 5200	06			For storage of medium and large rotatable stores
(b)		Mobile Cantilever Racking Unit with decking panels	7400 x 2600 x 3200	06			
(c)		Medium Duty Shelving/ Pallet Fixed Units	7400 x 2600 x 3200	06			
(d)		Medium Duty Shelving/ Pallet Fixed Units	7400 x 2600 x 5200	06			
RECOMMENDED MATERIAL HANDLING EQUIPMENT							
SI	Type	Size/capacity	Qty				Remarks
(a)	Full Electric Stacker	Minimum Fork Length 30000 mm / 1.5 ton	01				For handling rotatable stores
(b)	Multi Directional Forklift	Lift Height 6000 mm/ 5 ton	01				
(c)	Injection moulded Pallets	1500 x 1200 mm/ 1 ton	20				
(d)	Wheeled litter bins	Volume up to 500 ltrs	02				
RECOMMENDED SUPPORT SYSTEM							
SI	Description	Size/capacity	Qty				Remarks
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm	1 set				
	CCTV cameras/ monitors	IP Camera with digital zoom and IR capability	2 set				
(b)	Work stations (for two personnel)	3 mtr x 1.2 mtr x 1mtr with provision of suitable file cabinets on either side	05				
(c)	Split AC	4 ton	02				
(d)	Bird proofing	Bird Deterrent Gel (supply & application)	600 Kg				

(d) **IL – 38 SD New Store House (Main store Non AC section only):** This building (Building No. yet to be allotted) has been constructed in 2009 for storage of aircraft spares, equipment and various support/test equipment of upgraded version of IL-38SD aircraft. This building has not been provided with any storage arrangement/MHE. The spares and equipment have already been shifted from old store house and kept on ground/ un-symmetrical storage racks in a haphazard manner. The procurement, installation and commissioning of following storage systems and Material Handling Equipment (MHE) along with support facilities is recommended to be taken up in second phase of the project on priority:-

EXISTING FACILITIES							
Overall size (in mtr)	Usable Area (in m)	Total Height (in m)	Usable Height (in m)	EOT Crane	Storage Facilities	AC/ NO N-AC	Remarks
25.9 x 12.59	24 x 11.5	5	4.5	No	Steel racks	Non AC	For light/ medium stores



PROPOSED STORAGE SOLUTIONS						
SI	Storage System	Type/ Model	Size (in mm)	Qty		Remarks
(a)	Compactors	Double face mobile storage system	4550 x 1200 x 4500	12		For storage of light/ medium stores
(b)		Double face fixed storage system	4550 x 1200 x 4500	02		
(c)		Single face fixed storage system	4550 x 600 x 4500	04		
(d)		Double face mobile storage system	1550 x 1200 x 4500	12		
(e)		Double face fixed storage system	1550 x 1200 x 4500	02		
(f)		Single face fixed storage system	1550 x 600 x 4500	04		

RECOMMENDED MATERIAL HANDLING EQUIPMENT						
SI	Type	Size/capacity	Qty			Remarks
(a)	Full Electric Stacker	Minimum Fork Length 3000 mm / 1.5 ton	01			For handling light/ medium stores
(b)	Cage Pallets(Collapsible)	1000 x 1000 x 1000 mm / 1 ton	20			
(c)	Order Picker	Lift Height 5500 mm/ 05 ton	01			
(d)	Injection moulded Pallets	1500 x 1200 mm/ 1 ton	20			
(e)	Wheeled litter bins	Volume up to 500 ltrs	02			

RECOMMENDED SUPPORT SYSTEM						
SI	Description	Size/capacity	Qty			Remarks
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm	2 set			For AC & non AC sections
(b)	CCTV cameras/ monitors	IP Camera with digital zoom and IR capability	2 set			
(c)	Work stations (for two personnel)	3 mtr x 1.2 mtr x 1mtr with provision of suitable file cabinets on either side and two PC station	02			
(d)	Bird proofing	Bird Deterrent Gel (supply & application)	600 Kg			Bird proofing

(e) **KM – 31 Store House:** This storehouse (P-29, constructed in 1995) has already a compactor for storage of small / light items. However, all heavy and large items are kept on ground on top of each other and require a systematic racking unit of heavy duty in nature with suitable MHE. The procurement, installation and commissioning of following storage systems and Material Handling Equipment(MHE) along with support facilities is recommended to be taken up in second phase of the project on priority:-

EXISTING FACILITIES							
Overall size (in mtr)	Usable Area (in mtr)	Total Height (in mtr)	Usable Height (in mtr)	EOT Crane	Storage Facilities	AC/ NON-AC	Remarks
25.2 x 11.8	24 x 11	4.5	4	No	Compactors	Non AC	

PROPOSED STORAGE SOLUTIONS						
SI	Storage System	Type/ Model	Size (in mm)	Qty		Remarks
(a)	Heavy duty rackings	Heavy Duty Pallet racking with decking panels	2410 x 800 x 4000	16		For heavy stores

RECOMMENDED MATERIAL HANDLING EQUIPMENT						
SI	Type	Size/capacity	Qty			Remarks
(a)	Full Electric Stacker	Minimum Fork Length 3000 mm / 1.5 ton	01			For handling heavy stores



(b)	Cage Pallets(Collapsible)	1000 x 1000 x 1000 mm/ 1 ton	20		
(c)	Wheeled litter bins	Volume up to 500 ltrs	02		
(d)	Injection moulded Pallets	1500 x 1200 mm / 1 ton	10		
RECOMMENDED SUPPORT SYSTEM					
Sl	Description	Size/capacity	Qty		Remarks
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm	2 set		For DO & KM both stores
(b)	CCTV cameras/ monitors	IP Camera with digital zoom and IR capability	2 set		
(c)	Bird proofing	Bird Deterrent Gel (supply & application)	600 Kg		
(d)	Work stations (for two personnel)	3 mtr x 1.2 mtr x 1mtr with provision of suitable file cabinets on either side and two PC station	01		

(f) **Scrap Yard:** The present Scrap Yard is utilized for stowage / storage of scrapped items received from various Naval units and Awaiting Final Disposal by e-Auction through MSTC. These stores are held for prolonged duration and get deteriorated by the time final disposal is done. Presently only katcha ground is available for the same. Provisioning of a **hard standing** along with a roof will ensure proper storage without further deterioration. The cost of this provision will be offset by the increased value of the material obtained during e-Auction. As the vendors from nationwide visit the Scrap Yard whilst participating in e-auctioning, the investment in **the hard standing and the shed** will go a long way to ensure in fetching the fair value of the scrapped items. No MHE and support facilities are recommended view same will be utilized ex-rotatable section.

PHASE – III

1.3 **PHASE – III.** During third phase of project implementation, storehouses, which require minimum alterations/ additions to existing storage facilities will be taken up for modernisation. KV, KM, MTS, Shipping, SE/FC, POL stores and AGS store will be covered in this phase. The recommended storage and handling equipment along with support facilities for these store houses are as follows:-

(a) **KV - 28 Store House:** This storehouse (P-28, constructed in 1995) consists of spares and equipment (approx 7800 by type items) of KV-28 aircraft and same are stored in steel/wooden racks on ground & first floors. The heavy boxes and minor spares are kept on ground and compactor respectively in ground floor. The newly inducted KM-31 spares are proposed to be stored on first floor with recommended provisions. The procurement, installation and commissioning of following storage systems and Material Handling Equipment (MHE) along with support facilities is recommended be taken up in third phase of the project:-

(i) **Ground Floor**

EXISTING FACILITIES							
<u>Overall size (in mtr)</u>	<u>Usable Area (in mtr)</u>	<u>Total Height (in mtr)</u>	<u>Usable Height (in mtr)</u>	<u>EOT Crane</u>	<u>Storage Facilities</u>	<u>AC/ NON-AC</u>	<u>Remarks</u>
24.1 x 14.9	23 x 14	3.5	3	No	Compactors (Half portion)	Central AC	Light & medium stores



PROPOSED STORAGE SOLUTIONS						
SI	Storage System	Type/ Model	Size (in mm)	Qty		Remarks
(a)	Compactors	Double face mobile storage system	4550x1200x3000	15		For storage of Light & medium stores
(b)		Double face fixed storage system	4550 x1200 x 3000	01		
(c)		Single face fixed storage system	4550 x 600 x 3000	02		
(d)	Light duty shelving	Light Duty Shelving/ Racking Units	4550x1200x3000	08		

RECOMMENDED MATERIAL HANDLING EQUIPMENT						
SI	Type	Size/capacity	Qty			Remarks
(a)	Full Electric Stacker	Min. Fork Length 3000 mm/1.5 ton	01			For handling Light & medium stores
(b)	Cage Pallets(Collapsible)	1000 x 1000 x 1000 mm / 1 ton	20			
(c)	Order Picker	Lift Height 3000 mm / 0.5 ton	01			
(d)	Injection moulded Pallets	1200 x 1000 mm/ 1 ton	20			
(e)	Wheeled litter bins	Volume up to 500 ltrs	02			
(f)	Electric Lifting Platform	1200 x 1200 x 1300 mm/ 1 ton	01			For lifting stores on first floor

RECOMMENDED SUPPORT SYSTEM						
SI	Description	Size/capacity	Qty			Remarks
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm	1 set			
(b)	CCTV cameras/ monitors	IP Camera with digital zoom and IR capability	1 set			
(c)	Work stations (for two personnel)	3 mtr x 1.2 mtr x 1mtr with provision of suitable file cabinets on either side and two PC station	01			

(ii) **First Floor (for new KM-31 Spares)**

EXISTING FACILITIES							
Overall size (in mtr)	Usable Area (in mtr)	Total Height (in mtr)	Usable Height (in mtr)	EOT Crane	Storage Facilities	AC/ NON-AC	Remarks
39.43 x 19.6	38 x 18	4	3.7	No	Wooden racks	Non AC	KV-28 spares

PROPOSED STORAGE SOLUTIONS						
SI	Storage System	Type/ Model	Size (in mm)	Qty		Remarks
(a)	Compactors	Double face mobile storage system	4550 x 1200 x 3500	15		For storage of new KM-31 spares
(b)		Double face fixed storage system	4550 x 1200 x 3500	01		
(c)		Single face fixed storage system	4550 x 600 x 3500	02		



(d)	Double face mobile storage system	3050 x 1200 x 3500	21		
(e)	Double face fixed storage system	3050 x 1200 x 3500	02		
(f)	Single face fixed storage system	3050 x 600 x 3500	02		

RECOMMENDED MATERIAL HANDLING EQUIPMENT

SI	Type	Size/capacity	Qty	Remarks
(a)	Hand Pallet Truck	Minimum Fork Length 1500 mm /1 ton	01	For handling light/ medium stores
(b)	Order Picker	Lift Height 3000 mm / 0.5 ton	02	
(c)	Injection moulded Pallets	1200 x 1000 mm/ 1 ton	25	
(d)	Wheeled litter bins	Volume up to 500 ltrs	02	

RECOMMENDED SUPPORT SYSTEM

SI	Description	Size/capacity	Qty	Remarks
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm	1 set	
(b)	CCTV cameras/ monitors	IP Camera with digital zoom and IR capability	1 set	
(c)	Work stations (for two personnel)	3 mtr x 1.2 mtr x 1mtr with provision of suitable file cabinets on either side and two PC station	01	
(d)	Split AC	4 ton each	08	

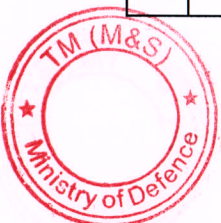
(b) **MT Store House:** This storehouse (T-05, constructed in 1984) has approx 2000 items by type of minor MT spares and various Batteries and Tyres of MT vehicles. These items are kept on ground without any systemic storage provisions. The procurement, installation and commissioning of following storage systems and Material Handling Equipment (MHE) is recommended to be taken up in third phase of the project on priority:-

EXISTING FACILITIES

Overall size (in mtr)	Usable Area (in mtr)	Total Height (in mtr)	Usable Height (in mtr)	EOT Crane	Storage Facilities	AC/ NON-AC	Remarks
36 x 11.8	34 x 10	3.5	3.1	Yes	Wooden racks	Non AC	Battery, tyres and MT spares

PROPOSED STORAGE SOLUTIONS

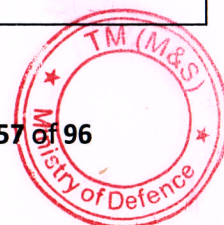
SI	Storage System	Type/ Model	Size (in mm)	Qty	Remarks
(a)	Heavy/ Medium weight racking system	Double faced Heavy Duty Tyre racking with wiremesh decking panels.	6460 x 2300 x 3000	06	For storage of MT spares, batteries & tyres
(b)		Single faced Heavy Duty Tyre racking with wire mesh decking panels.	6460 x 1100 x 3000	02	
(c)		Heavy duty rack for battery storage	2500 x 800 x 3000	12	
(d)		Medium duty shelves	6460 x 2300 x 3000	12	



RECOMMENDED MATERIAL HANDLING EQUIPMENT				
SI	Type	Size/capacity	Qty	Remarks
(a)	Full Electric stacker	Minimum Fork Length 3000 mm /1.5 ton	01	For handling MT spares, batteries & tyres
(b)	Order Picker	Lift Height 5500 mm / 0.5 ton	02	
(c)	Injection moulded Pallets	1200 x 1000 mm/ 1 ton	40	
(d)	Wheeled litter bins	Volume up to 500 ltrs	02	
RECOMMENDED SUPPORT SYSTEM				
SI	Description	Size/capacity	Qty	Remarks
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm	1 set	
(b)	CCTV cameras/ monitors	IP Camera with digital zoom and IR capability	1 set	
(c)	Work stations (for two personnel)	3 mtr x 1.2 mtr x 1mtr with provision of suitable file cabinets on either side and two PC station	01	

(c) **Shipping Store House:** This storehouse (T-15, constructed in 1985) is mainly made for storage of consignments received ex units and civil agencies. Also, consignments awaiting dispatch to various in country and abroad agencies are handled in this store house. These items are fast moving ones and speedy stowage/removal of same is desirable. However, on setting up R & D facilities in KR building, this store house will be utilised for storage of KM-31 aircraft spares. The procurement, installation and commissioning of following storage systems and Material Handling Equipment (MHE) along with support facilities is recommended to be taken up in third phase of the project:-

EXISTING FACILITIES							
Overall size (in mtr)	Usable Area (in mtr)	Total Height (in mtr)	Usable Height (in mtr)	EOT Crane	Storage Facilities	AC/ NON-AC	Remarks
24.8 x 10	23 x 8.5	5.75	5	No	Nil	Non AC	For shipping activities
PROPOSED STORAGE SOLUTIONS							
SI	Storage System	Type/ Model	Size (in mm)	Qty			Remarks
(a)	Heavy duty racking system	Mobile Cantilever Racking Unit with decking panels	7400 x 2600 x 5000	02			For storage of heavy stores
(b)		Mobile Heavy Duty Rack with Deck Panel Unit	2600x 2500 x 5000	04			
(c)		Heavy Duty Pallet Unit	7400 x 2600 x 5000	04			
RECOMMENDED MATERIAL HANDLING EQUIPMENT							
SI	Type	Size/capacity	Qty			Remarks	
(a)	Narrow Aisle Forklift	Lift Height 6000mm / 2 ton	01			For handling heavy stores	
(b)	Cage Pallets(Collapsible)	1000 x 1000 x 1000 mm /1 ton	60				
(c)	Injection moulded Pallets	1500 x 1200 mm/ 1 ton	60				
(d)	Wheeled litter bins	Volume up to 500 ltrs	02				
RECOMMENDED SUPPORT SYSTEM							
SI	Description	Size/capacity	Qty			Remarks	
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm	1 set				
(b)	CCTV cameras/ monitors	IP Camera with digital zoom and IR capability	1 set				
(c)	Bird proofing	Bird Deterrent Gel (supply & application)	600 Kg				
(d)	Work stations (for two personnel)	3 Mx1.2 Mx1 M with provision of suitable file cabinets on either side	02				



		and two PC station		
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(d) **SE/FC and Annex Store House.** This Store House (T-01, constructed in 1978) has Safety Equipment and Flying Clothing items of all aircraft. The Annex store has provision for storage of heavy boxes. The procurement, installation and commissioning of following storage systems and Material Handling Equipment (MHE) is recommended to be taken up in third phase of the project:-

EXISTING FACILITIES							
Overall size (in m)	Usable Area (in m)	Total Height (in m)	Usable Height (in m)	EOT Crane	Storage Facilities	AC/ NON-AC	Remarks
48.26 x 9.35	47 x 8.5	3.8	3.4	No	Steel racks	AC	SE/FC items
PROPOSED STORAGE SOLUTIONS							
SI	Storage System	Type/ Model	Size (in mm)	Qty			Remarks
(a)	Compactors	Double face mobile storage system with perforations for air circulation in AC room.	6050 x 1200 x 3000	06			For storage of SE/ FC and Misc. items
(b)		Single face fixed storage system with perforations for air circulation in AC room.	6050 x 600 x 3000	01			
(c)	Medium and heavy duty racks	Heavy Duty Rack	2790 x 800 x 3000	20			
(d)		Medium duty shelves	6050 x 1200 x 3000	10			
RECOMMENDED MATERIAL HANDLING EQUIPMENT							
SI	Type	Size/capacity	Qty				Remarks
(a)	Full Electric stacker	Lift Height 3000 mm /1.5 ton	01				For handling of light stores
(c)	Injection moulded Pallets	1200 x 1000 mm/ 1 ton	20				
(d)	Wheeled litter bins	Volume up to 500 ltrs	02				
RECOMMENDED SUPPORT SYSTEM							
SI	Description	Size/capacity	Qty				Remarks
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm	2 sets				
(b)	CCTV cameras/ monitors	IP Camera with digital zoom and IR capability	1 set				
(c)	Work stations (for two personnel)	3M x1.2 M x 1M with provision of suitable file cabinets on either side and two PC station	02				

(e) **POL Store Houses.** These storehouses (two aviation POL and one MT POL store) have approx 320 by type POLs for MT vehicles and Aviation uses. These POLs are stored in heavy drums and small containers of various sizes. The containers are stored in wooden/steel racks and heavy drum are kept on ground. The procurement, installation and commissioning of storage systems and Material Handling Equipment (MHE) along with support facilities indicated against each are recommended to be taken up in fourth phase of the project.

(i) **MT POL store (T-08, Constructed in 1985)**

EXISTING FACILITIES							
Overall size (in mtr)	Usable Area (in mtr)	Total Height (in mtr)	Usable Height (in mtr)	EOT Crane	Storage Facilities	AC/ NON-AC	Remarks
12.1 x 8	10.5 x 7	4	3.4	No	Nil	Non AC	Oil barrels



PROPOSED STORAGE SOLUTIONS					
Sl	Storage System	Type/ Model	Size (in mm)	Qty	Remarks
(a)	POL storage solution	Double face mobile storage system	3050 x 900 x 2600	05	For storage of MT POL
(b)		Single face mobile storage system	3050 x 600 x 2600	02	
(c)		Heavy duty racking for oil drums	2700 x 700 x 2500	02	
(d)		Heavy duty racking for oil drums	1400 x 700 x 2500	02	
RECOMMENDED MATERIAL HANDLING EQUIPMENT					
Sl	Type	Size/capacity	Qty	Remarks	
(a)	Full Electric Stacker	Minimum Fork Length 3000 mm / 1.5 ton	01	For handling heavy POL containers	
(b)	Drum Clamp Attachment (for 2 drum sets) with fork extension	1 ton capacity with fork extension L-1100 mm/ 1 ton	02 set		
(c)	Wheeled litter bins	Volume up to 500 ltrs	02		
RECOMMENDED SUPPORT SYSTEM					
Sl	Description	Size/capacity	Qty	Remarks	
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm	1 set		

(ii) **Aviation POL Store (A) (T-16, constructed in 1978)**

EXISTING FACILITIES							
Overall size (in mtr)	Usable Area (in mtr)	Total Height (in mtr)	Usable Height (in mtr)	EOT Crane	Storage Facilities	AC/ NON-AC	Remarks
15.8X11.5	14 x 10	4.5	4.1	No	Nil	Non AC	Oil drums & barrels
PROPOSED STORAGE SOLUTIONS							
Sl	Storage System	Type/ Model	Size (in mm)	Qty	Remarks		
(a)	POL storage solution	Double face mobile storage system	4550 x 900 x 2600	12	For storage of Aviation POL		
(b)		Single face fixed storage system	4550 x 900 x 2600	02			
(c)		Double face mobile storage system	6050 x 900 x 2600	12			
(d)		Single face fixed storage system	6050 x 900 x 2600	02			
RECOMMENDED MATERIAL HANDLING EQUIPMENT							
Sl	Type	Size/capacity	Qty	Remarks			
(a)	Hand Pallet Truck	Minimum Fork Length 1500 mm / 1 ton	01	For handling Aviation POL containers			
(b)	Order picker	Lift height 3000 mm/0.5 ton	01				
RECOMMENDED SUPPORT SYSTEM							
Sl	Description	Size/capacity	Qty	Remarks			
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm	1 set				



(iii) **Aviation POL Store (B) (P-09, constructed in 1978)**

EXISTING FACILITIES							
Overall size (in mtr)	Usable Area (in mtr)	Total Height (in mtr)	Usable Height (in mtr)	EOT Crane	Storage Facilities	AC/ NON-AC	Remarks
14.8X 7.7	13 x 7	4	3.5	No	Nil	Non AC	Oil drums & barrels
PROPOSED STORAGE SOLUTIONS							
Sl	Storage System	Type/ Model	Size (in mm)	Qty			Remarks
(a)	POL storage solution	Double face mobile storage system	7550 x 900 x 2600	08			For storage of Aviation POL
(b)		Single face fixed storage system	7550 x 450 x 2600	04			
(c)		Heavy duty racking for oil drums	2700 x 700 x 2500	04			
(d)		Heavy duty racking for oil drums	1400 x 700 x 2500	02			
RECOMMENDED MATERIAL HANDLING EQUIPMENT							
Sl	Type	Size/capacity	Qty				Remarks
(a)	Hand Pallet Truck	Minimum Fork Length 1100 mm / 2 ton	02				For handling Aviation POL containers
(b)	Order picker	Lift height 5500 mm/0.5 ton	02				
(c)	Multi directional fork lift	Lift height 6000 mm / 5 ton	01				
RECOMMENDED SUPPORT SYSTEM							
Sl	Description	Size/capacity	Qty				Remarks
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm	1 set				8.40
(b)	Split AC	4 ton	03				

(f) **AGS stores.** This store (T-11, vintage of 70's) contains aircraft general spares which are light in weight but attractive/ costly in nature. There is no provision for proper storage of these items. It is proposed to install following storage equipment: -

EXISTING FACILITIES							
Overall size (in mtr)	Usable Area (in mtr)	Total Height (in mtr)	Usable Height (in mtr)	EOT Crane	Storage Facilities	AC/ NON-AC	Remarks
12 x 10	10 x 8	4.5	3.8	No	Nil	Non AC	AGS
PROPOSED STORAGE SOLUTIONS							
Sl	Storage System	Type/ Model	Size (in mm)	Qty			Remarks
(a)	Light/ medium storage	Medium Duty Palletised racking system	4740 x 770 x 3520	10			For AGS stores
(b)		Light Duty Palletised/ shelving racking system	4740 x 770 x 3520	10			
RECOMMENDED MATERIAL HANDLING EQUIPMENT							
Sl	Type	Model	Size/capacity	Qty			Remarks
Nil							
RECOMMENDED SUPPORT SYSTEM							
Sl	Description	Size/capacity	Qty				Remarks
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm	1 set				
(b)	Work stations (for two personnel)	3 m x 1.2 m x 1m with provision of suitable file cabinets on either side and two PC station	01				



PHASE – IV

1.4 **PHASE – IV.** During fourth phase of project implementation, store houses which are adequately equipped with 80's vintage equipment and require modernisation to ensure efficient storage handling activities will be taken up for modernisation. During this phase Sea Harrier Storehouses, Kiran building including proposed R & D section, will be covered up. The recommended storage and handling equipment along with support facilities for these store houses are as follows: -

(a) **Sea Harrier Store Houses.** The Sea Harrier store house (P-17, constructed in 1983) has approx 42000 spares by type and stored in five different store houses (A to E). Each store house has specific type of stores and storage arrangement systems. There are about 1,000 boxes of different sizes kept in ground floor heavy sections (on top of each other) without any systematic storage arrangement. Post Phasing out of Sea Harrier aircraft, the Store Houses with proposed Modernisation would be used for stocking inventory or any new induction aircraft in future. All minor spare are stored in steel racks at different locations. The procurement, installation and commissioning of following storage systems and Material Handling Equipment (MHE) along with supporting facilities is recommended to be taken up in third phase of the project:-

(i) **Ground floor Heavy store**

EXISTING FACILITIES							
Overall size (in mtr)	Usable Area (in mtr)	Total Height (in mtr)	Usable Height (in mtr)	EOT Crane	Storage Facilities	AC/ NON-AC	Remarks
22.25 x 11.7	21 x10	7.5	6.8	Yes	Nil	Non AC	SH heavy stores
PROPOSED STORAGE SOLUTIONS							
SI	Storage System	Type/ Model	Size (in mm)	Qty			Remarks
(a)	Heavy duty mobile/ fixed racking	Mobile Cantilever Racking Unit with decking panels	3600 x 2600 x 6500	04			For storage of large and heavy stores
(b)		Fixed Cantilever Racking Unit with decking panels	3600 x 1500 x 6500	04			
(c)		Mobile Heavy Duty Rack with Deck Panel Unit	3600x 2500 x 6500	06			
(d)		Mobile Heavy Duty pallet Racking.	3500x 2500 x 6500	06			
RECOMMENDED MATERIAL HANDLING EQUIPMENT							
SI	Type	Size/capacity	Qty				Remarks
(a)	Full Electric Stacker	Minimum Fork Length 3000 mm /1.5 ton	01				For handling heavy stores
(b)	Cage Pallets(Collapsible)	1000 x 1000 x 1000 mm /1 ton	80				
(c)	High Reach lift truck	Lift Height 6500 mm/ 2 ton	01				
(d)	Injection moulded Pallets	1500 x 1200 mm/ 1 ton	20				
(e)	Wheeled litter bins	Volume up to 500 ltrs	02				
RECOMMENDED SUPPORT SYSTEM							
SI	Description	Size/capacity	Qty				Remarks
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm	1 set				
(b)	Bird proofing	Bird Deterrent Gel (supply & application)	6000 Kg				



(c)	Work stations (for two personnel)	3 mtr x 1.2 mtr x 1mtr with provision of suitable file cabinets on either side and two PC station	02		
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(ii) **Ground floor Main Store**

EXISTING FACILITIES							
<u>Overall size (in mtr)</u>	<u>Usable Area (in mtr)</u>	<u>Total Height (in mtr)</u>	<u>Usable Height (in mtr)</u>	<u>EOT Crane</u>	<u>Storage Facilities</u>	<u>AC/ NON-AC</u>	<u>Remarks</u>
22 x 11.7	21 x 10	4	3.5	No	Steel racks	Non AC	SH light stores
PROPOSED STORAGE SOLUTIONS							
<u>SI</u>	<u>Storage System</u>	<u>Type/ Model</u>	<u>Size (in mm)</u>	<u>Qty</u>			<u>Remarks</u>
(a)	Compactors	Double faced mobile storage system with drawers.	3800 x 770 x 3450	30			For storage of SH minor spares
(b)		Single faced mobile storage system with drawers.	3800 x 625 x 3450	06			
(c)		Double faced fixed storage system with drawers.	3800 x 770 x 3450	04			
RECOMMENDED MATERIAL HANDLING EQUIPMENT							
<u>SI</u>	<u>Type</u>	<u>Size/capacity</u>	<u>Qty</u>				<u>Remarks</u>
(a)	Full Electric Stacker	Minimum Fork Length 3000 mm / 1.5 ton	01				For handling light stores
(b)	Order Picker	Lift Height 3000mm/ 0.5 ton	01				
(c)	Injection moulded Pallets	1200 x 1000 mm/ 1 ton	40				
(d)	Wheeled litter bins	Volume up to 500 ltrs	02				
RECOMMENDED SUPPORT SYSTEM							
<u>SI</u>	<u>Description</u>	<u>Size/capacity</u>	<u>Qty</u>				<u>Remarks</u>
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm	1 set				
(b)	CCTV cameras/ monitors	IP Camera with digital zoom and IR capability	1 set				
(c)	Work stations (for two personnel)	3 m x 1.2 m x 1m with provision of suitable file cabinets on either side and two PC station	02				
(d)	Split AC	4 ton each	08				

(iii) **First Floor (Light / Medium stores)**

EXISTING FACILITIES							
<u>Overall size (in mtr)</u>	<u>Usable Area (in mtr)</u>	<u>Total Height (in mtr)</u>	<u>Usable Height (in mtr)</u>	<u>EOT Crane</u>	<u>Storage Facilities</u>	<u>AC/ NON-AC</u>	<u>Remarks</u>
22 x 11.7	20 x 10	4.94	4.5	No	Steel racks	Non AC	Medium stores
PROPOSED STORAGE SOLUTIONS							
<u>SI</u>	<u>Storage System</u>	<u>Type/ Model</u>	<u>Size (in mm)</u>	<u>Qty</u>			<u>Remarks</u>
(a)	Compactors	Double face mobile storage system	4650 x 1200 x 4500	10			For storage of

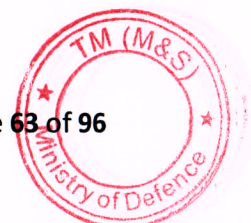


(b)		Double face fixed storage system	4650 x 1200 x 4500	02	SH medium stores (not so fast moving items)
(c)		Single face fixed storage system	4650 x 600 x 4500	04	
(d)		Double face mobile storage system	3050 x 1200 x 4500	10	
(e)		Double face fixed storage system	3050 x 1200 x 4500	02	
(f)		Single face fixed storage system	3050 x 600 x 4500	04	
RECOMMENDED MATERIAL HANDLING EQUIPMENT					
SI	Type	Size/capacity	Qty	Remarks	
(a)	Hand Pallet Truck	Minimum Fork Length 1500 mm / 1 ton	01	For handling medium stores on first floor	
(b)	Cage Pallets(Collapsible)	1000 x 1000 x 1000 mm /1 ton	20		
(c)	Order Picker	Lift Height 3000mm /0.5 ton	01		
(d)	Injection moulded Pallets	1200 x 1000 mm/ 1 ton	20		
(e)	Wheeled litter bins	Volume up to 500 ltrs	02		
RECOMMENDED SUPPORT SYSTEM					
SI	Description	Size/capacity	Qty	Remarks	
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm	1 set		
(b)	CCTV cameras/ monitors	IP Camera with digital zoom and IR capability	1 set		
(c)	Work stations (for two personnel)	3 mtr x 1.2 mtr x 1mtr with provision of suitable file cabinets on either side and two PC station	02		

(b) **Kiran store house (Kiran Building)**. This store house (P-18, constructed in 1983) has four sections i.e. two on ground floor and two on first floor having approx 7000 & 5000 spares by type of Kiran & Sea Harrier respectively. Each store house has specific type of stores and storage arrangement system. All minor spare are stored in steel racks and compactors at different location on first floor. This building has provision of central AC plant which is presently non ops. The procurement, installation and commissioning of following storage systems and MHE along with support facilities is recommended to be taken up in fourth phase of the project:-

(i) **Ground floor rear portion (AC Space)**

EXISTING FACILITIES							
Overall size (in mtr)	Usable Area (in mtr)	Total Height (in mtr)	Usable Height (in mtr)	EOT Crane	Storage Facilities	AC/ NON -AC	Remarks
22.2 x 11.7	21x 10.5	4	3.5	No	Nil	AC	KR spares
PROPOSED STORAGE SOLUTIONS							
SI	Storage System	Type/ Model	Size (in mm)	Qty	Remarks		
(a)	compactors	Double faced mobile storage system with drawers.	3800 x 770 x 3145	10	For storage of light spares and aircraft tyres		
(b)		Single faced mobile storage system with drawers.	3800 x 625 x 3145	02			
(c)		Double faced fixed storage system with drawers.	3800 x 770 x 3145	01			
(d)		Heavy duty motorized tyre carousel	600 x 550 x 720 x 375	10			



RECOMMENDED MATERIAL HANDLING EQUIPMENT					
SI	Type	Size/capacity	Qty		Remarks
(a)	Full Electric Stacker	Minimum Fork Length 3000 mm / 1.5 ton	01		For handling light spares
(b)	Order Picker	Lift Height 3000 mm/ 0.5 ton	01		
(c)	Injection moulded Pallets	1200 x 1000 mm / 1 ton	25		
(d)	Wheeled litter bins	Volume up to 500 ltrs	02		
RECOMMENDED SUPPORT SYSTEM					
SI	Description	Size/capacity	Qty		Remarks
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm	1 set		
(b)	CCTV cameras/ monitors	IP Camera with digital zoom and IR capability	1 set		
(c)	Work stations (for two personnel)	3 mtr x 1.2 mtr x 1mtr with provision of suitable file cabinets on either side and two PC station	01		

(ii) **First floor (Sea Harrier section)**

EXISTING FACILITIES							
Overall size (in mtr)	Usable Area (in mtr)	Total Height (in mtr)	Usable Height (in mtr)	EOT Crane	Storage Facilities	AC/ NON -AC	Remarks
22.2 x 11.7	21 x 10	4	3.5	No	Steel racks	Non AC	SH medium stores
PROPOSED STORAGE SOLUTIONS							
SI	Storage System	Type/ Model	Size (in mm)	Qty			Remarks
(a)	Compactors	Double faced mobile storage system with drawers.	4740 x 770 x 3450	32			For storage of medium stores
(b)		Single faced mobile storage system with drawers.	4740 x 625 x 3450	04			
(c)		Double faced fixed storage system with drawers.	4740 x 770 x 3450	04			
RECOMMENDED MATERIAL HANDLING EQUIPMENT							
SI	Type	Size/capacity	Qty				Remarks
(a)	Hand Pallet Truck	Minimum Fork Length 1500 mm / 1 ton	01				For handling medium stores
(b)	Cage Pallets(Collapsible)	1000 x 1000 x 1000 mm/ 1 ton	20				
(c)	Order Picker	Lift Height 3000 mm/ 0.5 ton	01				
(d)	Injection moulded Pallets	1500 x 1200 mm/ 1 ton	10				
(e)	Wheeled litter bins	Volume up to 500 ltrs	01				
RECOMMENDED SUPPORT SYSTEM							
SI	Description	Size/capacity	Qty				Remarks
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm	1 set				
(b)	CCTV cameras/ monitors	IP Camera with digital zoom and IR capability	1 set				
(c)	Work stations (for two personnel)	3 mtr x 1.2 mtr x 1mtr with provision of suitable file cabinets on either side and two PC station	01				



(iii) **First floor (Kiran Main Stores)**

EXISTING FACILITIES							
<u>Overall size (in mtr)</u>	<u>Usable Area (in mtr)</u>	<u>Total Height (in mtr)</u>	<u>Usable Height (in mtr)</u>	<u>EOT Crane</u>	<u>Storage Facilities</u>	<u>AC/ NON-AC</u>	<u>Remarks</u>
22.2 x 11.7	21.5x 11	4	3.5	No	compactors & steel racks	Non AC	KR main stores
PROPOSED STORAGE SOLUTIONS							
<u>SI</u>	<u>Storage System</u>	<u>Type/ Model</u>		<u>Size (in mm)</u>	<u>Qty</u>	<u>Remarks</u>	
(a)	Compactors	Double faced mobile storage system with drawers.		4740 x 770 x 3145	16	For storage of light stores	
(b)		Single faced mobile storage system with drawers.		4740 x 625 x 3145	04		
(c)		Double faced fixed storage system with drawers.		4740 x 770 x 3145	02		
RECOMMENDED MATERIAL HANDLING EQUIPMENT							
<u>SI</u>	<u>Type</u>	<u>Size/Capacity</u>		<u>Qty</u>	<u>Remarks</u>		
(a)	Hand Pallet Truck	Minimum Fork Length 1500 mm / 1 ton		01	For handling light stores		
(b)	Cage Pallets(Collapsible)	1000 x 1000 x 1000 mm/1 ton		15			
(c)	Order Picker	Lift Height 3000 mm/ 0.5 ton		01			
(d)	Injection moulded Pallets	1500 x 1200 mm/ 1 ton		06			
(e)	Wheeled litter bins	Volume up to 500 ltrs		01			
RECOMMENDED SUPPORT SYSTEM							
<u>SI</u>	<u>Description</u>	<u>Size/capacity</u>		<u>Qty</u>	<u>Remarks</u>		
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm		1 set			
(b)	CCTV cameras/ monitors	IP Camera with digital zoom and IR capability		1 set			
(c)	Work stations (for two personnel)	3 mtr x 1.2 mtr x 1mtr with provision of suitable file cabinets on either side and two PC station		01			

(c) **R & D Section (Present Kiran stores ground floor front portion)**. The front portion of Kiran building ground floor (present Sea harrier stores) is proposed be converted into R & D section being closest to the main gate. This storehouse (P-18, constructed in 1983) will be provisioned with heavy duty storage system along with suitable MHE. The hard standing space (59 x 11.5 m) between Kiran and Sea Harrier building is also proposed to be provided with Galvanium sheet shed supported by metallic trusses on both side of the existing rooftop. The procurement, installation and commissioning of following storage systems and Material Handling Equipment (MHE) along with support facilities is recommended to be taken up in fourth phase of the project:-

EXISTING FACILITIES							
<u>Overall size (in mtr)</u>	<u>Usable Area (in mtr)</u>	<u>Total Height (in mtr)</u>	<u>Usable Height (in mtr)</u>	<u>EOT Crane</u>	<u>Storage Facilities</u>	<u>AC/ NON-AC</u>	<u>Remarks</u>
22 x 11.7	20 x 10	4	3.5	No	Steel racks	Central AC	SH light stores



PROPOSED STORAGE SOLUTIONS						
Sl	Storage System	Type/ Model	Size (in mm)	Qty		Remarks
(a)	Heavy duty storage rackings	Mobile cantilever racking unit with decking panels	3800 x 770 x 3145	20		For incoming/ outgoing consignments
(b)		Mobile heavy duty racking unit with decking panels	2600 x 2500 x 3145	12		
(c)		Heavy Duty Palletised racking system	3800 x 770 x 3145	10		
(d)		Heavy Duty Palletised racking system	2600 x 2500 x 3145	10		
RECOMMENDED MATERIAL HANDLING EQUIPMENT						
Sl	Type	Size/capacity	Qty			Remarks
(a)	Hand Pallet Truck	Minimum Fork Length 1500 mm / 1 ton	02			For handling heavy stores
(b)	Multi Directional fork lift	Fork height 6 mtr / 5 ton	01			
(c)	Injection moulded Pallets	1500 x 1200 mm/ 1 ton	30			
(d)	Wheeled litter bins	Volume up to 500 ltrs	02			
(e)	Electric Cart	3.5 x2 x 2 mtr with carrying capacity 2 persons plus 500 Kg	01			
(f)	Full Electric Stacker	Minimum Fork Length 3000 mm / 1.5 ton	01			Loading/ unloading from vehicle
(g)	Mobile & Fixed Dock Leveler	10 M x 2.5 M x 2 M (Adjustable)/ 10 ton	02 (01 each fixed & mobile)			
RECOMMENDED SUPPORT SYSTEM						
Sl	Description	Size/capacity	Qty			Remarks
(a)	Fire/ smoke sensors with Alarm system	Optical detectors, Electronic hooters & central alarm	1 set			Hard standing open space between KR and SH buildings to be covered.
(b)	CCTV cameras/ monitors	IP Camera with digital zoom and IR capability	1 set			
(c)	Work stations (for two personnel)	3 mtr x 1.2 mtr x 1mtr with provision of suitable file cabinets on either side and two PC station	04			
(d)	Galvanium sheet shed supported by Metallic trusses	59 m x 11.5 m	01			

Note: - Max acceptable tolerances for all equipment +/- 5% or 100 mm whichever is smaller



Appendix A1
(Refers to para 17 of RFP)

ACCEPTANCE PROCEDURE FOR EQUIPMENT / SYSTEM / FACILITY

<u>SI No</u>	<u>Details</u>	<u>Reference</u>	<u>Acceptance Trial Procedure</u>
1	Automatic Storage and Retrieval System (for fast moving rotatable storehouse)	Part I of Appendix 'A'	(a) Association of any reputed third party certification agency (as given at para 25 of RFP) at cost of Seller during various stages such as inspection of raw material, creation, assembly and commissioning at site. (b) Certification by certification agency for compliance to material specification and technical and operational specification as per RFP. (c) Detailed demonstration of equipment and facilities with respect to intended functions as per RFP. (d) Detailed functional checks of equipment and facilities by nominated acceptance team of Indian Navy/MO (Goa). (e) To establish the 30% indigenous content of the material being used, the vendor will be required to submit the details of source of raw material and other items/materials being used in the manufacturing of the product.
2	Storage/Retrieval Solutions (for remaining store houses)	Part II of Appendix 'A'	Same as Above
3	Material Handling Equipment (for all store houses)	Part III of Appendix 'A'	Same as Above
4	Support Facilities (for all store houses)	Part IV of Appendix 'A'	Same as Above

Note: - Max acceptable tolerances for all equipment is +/- 5% or 100 mm whichever is smaller



COMPLIANCE TABLE

(FOR ALL EQUIPMENT UNDER PROCUREMENT)

Sl.	RFP reference / clause	Compliance/Partial Compliance	Indicate references of para / sub paras of the main technical document
<u>General Parameters as per RFP</u>			
Para 2 to 37			
<u>Technical Parameters as per Appendix A</u>			
<u>Compliance to Appendix C para wise</u>			
<u>Compliance to Appendix D</u>			
<u>Commercial Parameters as per Appendix E to RFP</u>			
	Advance Bank Guarantee Bond as per Para 3 of Appendix 'E' of RFP		
	Performance-cum-Warranty Bond as per Para 6 of Appendix 'E' of RFP		
<u>Compliance to Appendix F</u>			
<u>Compliance to Appendix G</u>			
<u>Compliance to Appendix H</u>			
<u>Compliance to Appendix J</u>			

Note: The above format is a guideline and the vendors are required to provide para wise individual compliance to all articles of RFP including the dimensions and quantities wherever applicable. The compliance should be supported by necessary technical brochures / drawings / plan wherever applicable.



Appendix C

(Refers to Para 5 of RFP)

WARRANTY CLAUSE

1. The seller warrants that all equipment supplied under this contract conform to technical specifications prescribed and shall perform according to the said Technical Specifications.
2. The seller warrants for a minimum period of 24 months from the date of acceptance of equipment and facilities under Phase IV that all equipment supplied under this contract and each component used in the manufacture there of shall be free from all types of defects and failures.
3. If within the period of warranty, the equipment are reported by Indian Navy to have failed to perform as per the specifications, the Seller shall either replace or rectify the same free of charge, maximum within 7 working days of notification of such defect provided that the equipment are used and maintained by Indian Navy as per instructions contained in the Operating Manual. Warranty of the equipment would be extended by such duration **of down time**. Record of the down time would be maintained by user in log book. Faulty or failed component shall be replaced or rectified free of cost by the supplier during the warranty period. All activities including diagnosis, rectification, calibration, transportation etc, required for making equipment serviceable and available would be the SELLER's responsibility. The supplier also undertakes to diagnose, test, adjust, calibrate and repair or replace the goods and equipment arising due to accidents by neglect or misuse by the operator or damage due to transportation of the equipment during the warranty period, at the cost mutually agreed to between the Buyer and the Seller. The Seller shall intimate the assignable cause of the failures.
4. Seller hereby warrants that necessary maintenance, service and repair back up during the warranty period shall be provided by the seller and he will ensure that the cumulative downtime period of the equipment does not exceed 15 days of the warranty period.
5. If a particular equipment or goods fails frequently or, the cumulative down time exceeds **15 days** of the warranty period **or a common defect is noticed in more than 20 % of the quantity of goods with respect to a particular equipment item or component or a sub-component**, that complete item **or** equipment shall be replaced free of cost by the **SELLER** within a stipulated period of **90 days** of receipt of the notification from the **BUYER** duly modified and upgraded through design improvement in all equipment supplied or yet to be supplied.
6. SELLER shall associate technical personnel of maintenance agency and QA of BUYER during warranty repair and shall provide complete details of defect, reasons and remedial actions for averting recurrence of such defects. During the Warranty Period, the supplier would be required to position Field Support Team



qualified on the proposed equipment to promptly address all warranty issues and enable smooth transition of unit to newly installed systems and facilities including ASRS.

7. The SELLER warrants that the goods supplied will conform to the Temperature and Humidity conditions as prevalent onsite at Goa. The environmental conditions have been stated at para 3 of Appendix A to the RFP.



COMPREHENSIVE ANNUAL MAINTENANCE CONTRACT

1. All equipment supplied under the proposed contract is to be maintained on site by the supplier through a Comprehensive Annual Maintenance Contract (inclusive of spares and labour) post warranty of 24 months. As the warranty shall be affected on completion of Phase-IV, the 3-year AMC shall commence on completion of warranty period. The equipment commissioned and accepted by Indian Navy during Phase I, II and III will continue to be maintained by the supplier till commencement of warranty period. The brief outline of the Comprehensive Annual Maintenance Contract is enumerated in succeeding paragraphs.

Technical and Material Support

2. The supplier is to ensure personnel support and replacement of defective parts in order to maintain all equipment fully operational and defect free during the AMC period. During the Comprehensive AMC Period, the supplier would be required to position Field Support Team qualified on the proposed equipment to provide technical support and promptly address all maintenance issues.

Material Costs and Labour Costs

3. The Annual Maintenance Contract cost is to be inclusive of all material costs, labour and service charges.

Maintenance

4. The maintenance of the equipment is to be carried out by the supplier at the Customer's premises. The equipment are to be maintained as per the OEM specified Maintenance Schedules and Maintenance Manuals of the equipment.

Repairs

5. In addition to maintenance, it will be the onus of the supplier to undertake repairs of the equipment. Defects on the equipment as and when occurred, will be intimated to the supplier. The supplier is to depute team for undertaking repairs of the equipment within 48 hrs from the time of reporting of the defect in order to make the equipment operational. Replacement of spares wherever required is to be provided by the supplier. However, defective hard disks, storage devices if any of computers will not be returned to the vendor and shall be destroyed.

Down-time

6. The downtime of equipment at any given time should not exceed 07 days. The supplier is to ensure defect rectification to operationalise the equipment within the specified down-time period. However, if the down-time exceeds 7 days, the Vendor shall provide a replacement equipment of the same configuration. In any case, the cumulative down time of any equipment should not exceed 21 days in a



year. In case the accumulated downtime in a year exceeds 21 days, the period of the Comprehensive AMC would be extended to that extent.

WMS Software

7. The Vendor shall provide all support for maintenance of the WMS of the ASRS during the period of AMC. This shall include:-

- (a) Upgrades, patches, fixes to the OS and the Application software.
- (b) Sustain integration with ILMS (Air), if any amendments are made to the ILMS (Air) software.
- (c) Back-up and restoration of WMS as and when required.

8. The Buyer reserves its right to terminate the AMC at any time without assigning any reason after giving a notice of six months. The Seller will not be entitled to claim any compensation against such termination. However, while terminating the AMC, if any payment is due to the Seller for maintenance services already performed in terms of the AMC, the same would be paid to it on pro rata basis per unit.

9. AMC Penalty Clauses. Penalty would be levied on the Seller in case of poor response or delayed response from the Seller from time of equipment breakdown intimation in excess of response time specified (Para 6 above refers), the period of AMC will be extended as indicated as per para 6 above.

10. Indian Navy may also deduct Liquidated Damages to the sum of 0.5% for every week of delay or part of a week, subject to the maximum value being not higher than 5% of the value of six monthly payment of AMC.

Technical Literature

11. The details of technical literature to be supplied with the system should be listed as per the suggested format at Annexure I to this Appendix. This should be provided with both Technical and Commercial Proposals. The cost column may be left blank in the Technical Proposal.

12. Training of Personnel: Training is to be provided to **IN** personnel and Defence Civilians at MO (Goa) for operation and maintenance of proposed equipment the details of which have been elaborated at para 10 of the RFP. Towards this the vendor is also required to provide necessary training aids including computer based training packages and interactive multimedia etc. The suggested format is placed at Annexure II to this Appendix.



Annexure I to Appendix D
(Refers to Para 11)

TECHNICAL LITERATURE

EQUIPMENT: All as per Proposal
Original Equipment Manufacturer (OEM): _____

Sr. No	Technical Literature	Unit Cost	Qty (sets)	Total Cost	Remarks
1.	User Handbook/operators Manual		20		
2.	Technical Manual				
3.	(a) <u>Part I.</u> Tech description, specifications, functioning of various Systems (b) <u>Part II.</u> Inspection/Maintenance tasks Repair procedures, materials used, fault diagnosis				
	Total Cost				

- Notes: - 1. In case any additional equipment is used their tech literature will be included.
2. If certain technical literature is being provided free of cost if should be indicated in the remarks column.





Annexure II to Appendix D
(Refers to Para 12)

TRAINING AGGREGATES

EQUIPMENT: _____
OEM: _____

Sl. No.	Description of Training Aggregate	Scale for each storehouse	Unit Cost	Total Cost	Remarks
1.	Training Aids to include One set (a) Charts (b) Slides (c) Training Brochures (d) Training Work models (e) Blow up diagram (f) Video films	(a) 02 (b) 01 set (c) 02 sets (d) Nil (e) 01 Set (f) 01			
2.	Cost of training 119 technicians				
3.	Any other				
	Total Cost				

Appendix E

(Refers to Para 28 of RFP)

COMMERCIAL CLAUSES

Payment Terms

1. All equipment are to be installed and commissioned on site at MO (Goa) on 'Turnkey' basis as per the implementation schedule placed at Annexure I.

2. Bidders should submit their bids in Indian Rupees.

3. **Payment Terms.**

(a) Advance Payment. A maximum of fifteen (15%) of the project cost (excluding cost of AMC) shall be paid within thirty (30) days of signing of Contract and upon submission of claim and a Bank guarantee for equivalent amount. Bank guarantee should be from Public Sector Banks.

(b) Stage wise Payments. The balance payments will be done post completion of each phase as follows:-

(i) Phase-I. 20% payment of the total cost of the project (excluding cost of AMC) will be made to the bidder post commissioning of the Phase-I as per implementation schedule of the project and acceptance by *IN*.

(ii) Phase-II. 20% payment of the total cost of the project (excluding cost of AMC) will be made to the bidder post commissioning of the Phase-II as per implementation schedule of the project and acceptance by *IN*.

(iii) Phase-III. 20% payment of the total cost of the project (excluding cost of AMC) will be made to the bidder post commissioning of the Phase-III as per implementation schedule of the project and acceptance by *IN*.

(iv) Phase-IV. 25% payment of the total cost of the project (excluding cost of AMC) will be made to the bidder post commissioning of the Phase-IV as per implementation schedule of the project and acceptance by *IN*.

(c) The payments will be made by PCDA (Navy) Mumbai through cheque / DBT/ EFT on submission of following documents:-

(i) Ink-signed copy of Commercial Invoice (original copy).

(ii) Ink-signed copy of Vendors Bills.

(iii) Certificates from third party inspections agency for equipment / facilities under a specific phase of implementation



(iv) User acceptance certificate from Indian Navy for respective phase of project.

(v) Claim for statutory and other levies to be supported with requisite documents/proof of payment, as applicable.

4. **AMC Payments.** The AMC will be concluded along with the contract of the project. The commencement of AMC for all the equipment supplied will commence after completion of warranty period. The payment for AMC shall be made on half yearly basis against user satisfaction certificate issued by the unit. The cost of AMC shall be mentioned separately in commercial bid and shall add to total cost of the project towards determination of L1 Vendor.

5. **Payment of Taxes and Duties.** Payment of taxes, duties and statutory levies will be made on actual, based on submission of requisite documentary proof to paying authority.

6. **Exchange Rate Variation.** Exchange Rate variation shall be applicable for Rupee contracts with Indian Vendors, based on RFPs issued under all categories of Capital acquisition mentioned at Para 4 (page 3 & 4) of DPP 2013. The indigenous & import components as also the various currencies (of the import components) for ERV purposes must be determined in advance. The guidelines on protection of Exchange Rate variation are given at Annexure I to this Appendix E.

7. **Performance cum Warranty Bond.** A Performance cum Warranty Bond of 5 % of value of the Contract would be furnished by the seller in the form of a Bank Guarantee. The bonds are required to be furnished from a public sector bank. The Performance-cum-Warranty Bond should be valid for a period of three months beyond the warranty period as specified in the contract and should be furnished within 30 days of signing the contract.

Inspection

8. The requirement of Third Party Inspection has been covered / mentioned at Para 25 of RFP.

Liquidated Damages (LD)

9. In the event of the SELLER's failure to submit the Bonds/ /Guarantees/Documents or/and supply/perform the items/services as per Delivery schedule specified in the contract, the Indian Navy may, at its discretion, withhold any payment until completion of the contract. The Indian Navy may also deduct LD to the sum of 0.5% of the contract price of the delayed/undelivered stores/services mentioned above for every week of delay or part of a week, subject to the maximum value of the Liquidated Damages being not higher than 5% of the value of delayed stores/services.



Annexure I to Appendix E
(Refer to Para 6)

**GUIDELINES OF PROTECTION OF EXCHANGE RATE
VARIATION IN CONTRACTS**

1. Parameters to be kept in view while formulation ERV Clause:-

(a) In contracts with Indian Vendors in all categories of capital acquisition where there is an import content, ERV clause will be provided. It shall, however, not be applicable to contract in the following conditions:-

- (i) The delivery period is less than one year or
- (ii) The rate of exchange variation is within the band of +/- 2.5%

(b) ERV clause will be framed according to the specific requirements of the contract. While calling for information at the RFP stage / formulation of ERV clauses in the contracts, the following factors are to be taken into consideration depending upon the requirements of the individual contracts:-

(i) Year wise and major currency wise import break up is to be indicated.

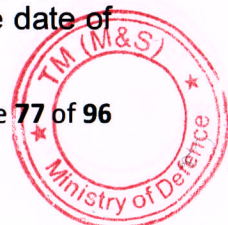
(ii) Detailed time schedule for procurement of imported material and their value at the FE rates adopted for the contract is to be furnished by the vendor as per the format given below:-

YEAR	TOTAL COST OF IMPORTED MATERIAL (IN RUPEES)	FE CONTENT – OUT FLOW (equivalent in rupees in Crores)			
		DOLLAR DENOMINATED	EURO DENOMINATED	POUND DENOMINATED	OTHER CURRENCIES

(iii) ERV clause will not be applicable in case delivery periods for imported content are subsequently to be refixed / extended unless the reasons for delivery period extension are attributable to the buyer.

(iv) For purposes of ensuring uniformity, the Base Exchange rate of the Parliament Street Branch of State Bank of India, New Delhi at the time of opening of commercial quotes will be adopted for each of the major foreign currencies.

(v) ERV clause in the contract is to clearly indicate that ERV is payable / refundable depending upon exchange rate as prevalent on the date of



transaction with reference to exchange rate adopted for the valuation of the contract.

(vi) Other issues which are peculiar to the contract.

2. **Methodology to be followed for claiming ERV.** “The prices finalized in the contract are based on the base exchange rates indicated in the contract. The year-wise amount of foreign exchange component of the imported items as indicated in the contract shall be adjusted for the impact of exchange Rate Variation of the Rupee based on the exchange rate prevailing on the date of each transaction, as notified by the SBI, Parliament Street Branch, New Delhi. The impact of notified Exchange Rate Variation shall be computed on an yearly basis for the outflow as tabulated in Annexure I. The table at Para 1(b) (ii) is to be an Annexure to the contract) and shall be paid / refunded before the end of the financial year based on the certification of Finance Head of the concerned Division.....”

3. Paying authority is to undertake a pre-audit of the documents before payment.

4. Documentation for Claiming ERV - The following documents would need to be submitted in support of the claim on account of ERV:-

(a) A bill of ERV claim enclosing worksheet.

(b) Banker's Certificate / debit advice detailing Foreign Exchange paid and Exchange rate as on date of transaction.

(c) Copies of import orders placed on the suppliers.

(d) Invoice of supplier for the relevant import orders.



EVALUATION CRITERIA & PRICE BID FORMAT

1. **Evaluation Criteria** - The guidelines for evaluation of Bids will be as follows -

1.1. Only those Bids will be evaluated, which are found to be fulfilling all the eligibility and qualifying requirements of the RFP, both technically and commercially. The bidder, whose price is arrived as lowest as per Evaluation criteria given in this Appendix, will be declared as L-1 bidder by Buyer.

1.2. **'Buy (Indian)' case**

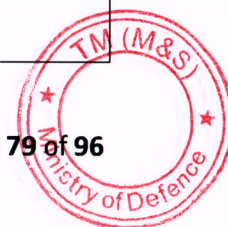
L-1 bidder will be determined on the basis of quoted cost of all items excluding excise duty payable to central Government but will take into account other levies / taxes / duties payable to central / state / local Government.

1.3. Custom duty on input materials shall not be loaded by the Indian Bidders in their price bids, if they are exempted under the existing Notifications. In such cases, necessary Custom Duty Exemption Certificate (CDEC) shall be issued by the Buyer.

1.4. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price will prevail and the total price will be corrected. If there is a discrepancy between words and figures, the amount in words will prevail for calculation of price.

1.5. **Price Bid Format:** - The Price Bid Format is given below and Bidders are required to fill up this correctly with full details. No column of the Bid format has to be left blank. The clubbing of serial/Sub serials to indicate a consolidated cost is not acceptable. The columns of 'quantity', unit cost' and 'total cost' are to be filled up with positive numerical values or 'Nil' at every row as applicable. If any column is not applicable and intentionally left blank, the reason for the same has to be clearly indicated in the remarks column.

Ser	Items	Qty	Unit cost	Total cost	Remarks
A.	Breakup of Cost of each Equipment in the following categories:- (a) ASRS Items (as mentioned in Part I of Appendix A) (b) Storage solutions for storehouses. (c) Material Handling Equipment.				(Refer Annexure I of Appendix A to the RFP)



	(d) Support Facilities / Equipment				
B.	Cost of Technical . Documentation.				(Refer Annexure I to Appendix D)
C.	Cost of of Training excluding the cost of travel and boarding and lodging In India				(Refer Para 10 of RFP and Annexure II to Appendix D)
D.	Any other cost (to be specified)				
E.	Freight and Transit Insurance Cost (where applicable)				
F.	Total Cost (Total of Serial A to E)				
G.	AMC Cost giving year-wise break-up Comprehensive AMC cost for 03 years (For 03 years on completion of two years warranty period)				
H.	Grand Total Cost (SI F + G)				
J.	Taxes and Duties on completed goods in respect of Indian Bidders 1. Excise Duty 2. VAT 3. Service Tax 4. Customs Duty payable on import component for which Custom Duty Exemption Certificate is required (mention the Custom notification number under which CDEC can be given) 5. Octroi / Entry tax / Any other tax				L-1 bidder will be determined on the basis of quoted cost of all items excluding excise duty payable to central Government but will take into account other levies, taxes and duties payable to central, state and local Government
K.	Foreign exchange components of the proposal in r/o Indian bidders only				

2. Evaluation of bids by DCF technique

2.1. Net Present Value (NPV) is a variant of DCF method, which will be used by the Buyer for evaluation of Bids. The Net Present Value of a Bid will be equal to the sum of the Present values of all the cash flows associated with it. The following formula will be used for calculating NPV of a bid –

$$NPV_n = \sum_{t=1}^n \frac{A_t}{(1+r)^t}$$

Where,

NPV = Net Present Value



NPV = Net Present Value

A_t = Expected cash flow occurring at the end of year 't' as mentioned in the Payment schedule of Bid

n = Duration of cash flow stream

r = Discounting Rate

t = The period after which payment is done

The bid with the lowest NPV would be selected.

2.2. The Discounting rate will be 9 %". (Note-This will be the Government of India's lending rate on loans given to state governments, as notified by Budget Division of Ministry of Finance annually)

2.3. **Structuring Cash Flows for Tenders/ Bids Received in the Same Currency** The cash outflows as shown in price bids will be taken into consideration. NPV of different bids will be calculated using the formula given above and the one having lowest NPV will be selected as L-1.

2.4. **Structuring Cash Flows for Tenders/ Bids Received in Different Currencies** Where bids are received in different currencies/combination of currencies, the cash outflow will be brought to a common denomination in rupees by converting foreign currency bids into rupees by taking into account the BC selling rate of Parliament Street Branch of State Bank of India, New Delhi as on the date of opening of Price Bids, as decided by the Buyer. Thereafter, the procedure as described above in Para 2.3 will be applied to arrive at NPV.

2.5. All bidders are required to indicate year-wise and currency-wise amount required as per their price bid in format given below. In case a bidder does not provide year-wise cash flow details in price bid, the amount quoted in their price bid will not be discounted for comparison purposes.

Year	Rupees	Total Cash-flow



STANDARD CLAUSES IN CONTRACT

LAW

1. The present Contract shall be considered and made in accordance to the laws of Republic of India.

ARBITRATION
(for Indian Pvt Vendors)

2.1 All disputes or differences arising out of or in connection with the present Contract, including the ones connected with the validity of the present Contract or any part thereof, shall be settled by bilateral discussions.

2.2 Any dispute, disagreement of question arising out of or relating to this Contract or relating to construction or performance (except as to any matter the decision or determination whereof is provided for by these conditions), which cannot be settled amicably, shall within sixty (60) days or such longer period as may be mutually agreed upon, from the date on which either party informs the other in writing by a notice that such dispute, disagreement or question exists, will be referred to the Arbitration Tribunal consisting of three arbitrators.

2.3 Within sixty (60) days of the receipt of the said Notice, one arbitrator shall be nominated in writing by SELLER and one arbitrator shall be nominated by BUYER.

2.4 The third arbitrator, shall be nominated by the parties within ninety (90) days of the receipt of the notice mentioned above, failing which the third arbitrator may be nominated under the provisions of Indian Arbitration and Conciliations act, 1996 or by dispute resolutions institutions like Indian Council of Arbitration and ICADR, at the request of either party, but the said nomination would be after consultation with both the parties. The arbitrator nominated under this clause shall not be regarded nor act as an umpire.

2.5 The Arbitration Tribunal shall have its seat in New Delhi or such other place in India as may be decided by the arbitrator.

2.6 The Arbitration Proceedings shall be conducted in India under the Indian Arbitration and Conciliation Act, 1996 and the award of such Arbitration Tribunal shall be enforceable in Indian Courts only.

2.7 The decision of the majority of the arbitrator shall be final and binding on the parties to this contract.



2.8 Each party shall bear its own cost of preparing and presenting its case. The cost of arbitration including the fees and expenses of the third arbitrator shall be shared equally by the Seller and the Buyer, unless otherwise awarded by the Tribunal arbitrator.

2.9 In the event of a vacancy caused in the office of the arbitrators, the party which nominated such arbitrator, shall be entitled to nominate another in his place and the arbitration proceedings shall continue from the stage they were left by the retiring arbitrator.

2.10 In the event of one of the parties failing to nominate its arbitrator within sixty (60) days as above or if any of the parties does not nominate another arbitrator within sixty (60) days of the place of arbitrator falling vacant, then the other party shall be entitled after due notice of at least thirty (30) days to request the President of the International Chamber of Commerce or dispute resolution institutions in India such as Indian Council of Arbitration, ICADR to nominate another arbitrator as above.

2.11 If the place of the third arbitrator falls vacant, his substitute shall be nominated according to the provisions herein above stipulated.

2.12 The parties shall continue to perform their respective obligations under this contract during the pendency of the arbitration proceedings except in so far as such obligations are the subject matter of the said arbitration proceedings.

ARBITRATION

(For Central & State PSEs)

3. In the event of any dispute or difference relating to the interpretation and application of the provisions of the contracts, such dispute or difference shall be referred by either party for Arbitration to the sole Arbitrator in the Department of Public Enterprises to be nominated by the Secretary to the Government of India in-charge of the Department of Public Enterprises. The Arbitration and Conciliation Act, 1996 shall not be applicable to arbitration under this clause. The award of the Arbitrator shall be binding upon the parties to the dispute, provided, however, any party aggrieved by such award may make a further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law & Justice, Government of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary/Additional Secretary, when so authorized by the Law Secretary, whose decision shall bind the Parties finally and conclusively. The Parties to the dispute will share equally the cost of arbitration as intimated by the Arbitrator.

ARBITRATION

(For Defence PSUs)

4. In the event of any dispute or difference relating to the interpretation and application of the provisions of the contracts, such dispute or difference shall be



referred by either party to the Arbitrator(s) appointed by Defence Secretary. The award of the Arbitrator(s) shall be binding upon the parties to the dispute.

FORCE MAJEURE

5.1 Should any force majeure circumstances arise, each of the contracting party shall be excused for the non-fulfilment or for the delayed fulfilment of any of its contractual obligations, if the affected party within (30 days) of its occurrence informs in a written form the other party.

5.2 Force majeure shall mean fires, floods, natural disasters or other acts such as war, turmoil, strikes, sabotage, explosions, beyond the control of either party.

5.3 Provided that acts of The Government or any State parties of the seller which may affect the discharge of the Seller's obligations under the contract shall not be treated as Force Majeure.

PENALTY FOR USE OF UNDUE INFLUENCE

6.1 The Seller undertakes that he has not given, offered or promised to give, directly or indirectly any gift, consideration, reward, commission, fees brokerage or inducement to any person in service of the Buyer or otherwise in procuring the Contracts or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of the Contract or any other Contract with the Government for showing or forbearing to show favour or disfavour to any person in relation to the Contract or any other Contract with the Government. Any breach of the aforesaid undertaking by the Seller or any one employed by him or acting on his behalf (whether with or without the knowledge of the seller) or the commission of any offers by the Seller or anyone employed by him or acting on his behalf, as defined in Chapter IX of the Indian Penal Code, 1860 or the Prevention of Corruption Act, 1988 or any other Act enacted for the prevention of corruption shall entitle the Buyer to cancel the contract and all or any other contracts with the Seller and recover from the Seller the amount of any loss arising from such cancellation. A decision of the Buyer or his nominee to the effect that a breach of the undertaking had been committed shall be final and binding on the Seller.

6.2 Giving or offering of any gift, bribe or inducement or any attempt at any such act on behalf of the Seller towards any officer/employee of the buyer or to any other person in a position to influence any officer/employee of the Buyer for showing any favour in relation to this or any other contract, shall render the Seller to such liability/penalty as the Buyer may deem proper, including but not limited to termination of the contract, imposition of penal damages, forfeiture of the Bank Guarantee and refund of the amounts paid by the Buyer.

INTEGRITY PACT

7.1 Further signing of an 'Integrity Pact' would be considered between government department and the bidder for schemes exceeding **20 Crores**. The Integrity Pact is a binding agreement between the agency and bidders for specific contracts in which the agency promises that it will not accept bribes during the



procurement process and bidders promise that they will not offer bribes. Under the IP, the bidders for specific services or contracts agree with the procurement agency or office to carry out the procurement in a specified manner. The essential elements of the IP are as follows:-

- (a) A pact (contract) between the Government of India (Ministry of Defence) (the authority or the "principal") and those companies submitting a tender for this specific activity (the "bidders");
- (b) An undertaking by the principal that its officials will not demand or accept any bribes, gifts, etc., with appropriate disciplinary or criminal sanctions in case of violation;
- (c) A statement by each bidder that it has not paid, and will not pay, any bribes;
- (d) An undertaking by each bidder to disclose all payments made in connection with the contract in question to anybody (including agents and other middlemen as well as family members, etc., of officials); the disclosure would be made either at time of tender submission or upon demand of the principal, especially when a suspicion of a violation by that bidder emerges;
- (e) The explicit acceptance by each bidder that the no-bribery commitment and the disclosure obligation as well as the attendant sanctions remain in force for the winning bidder until the contract has been fully executed;
- (f) Undertakings on behalf of a bidding company will be made "in the name and on behalf of the company's chief executive officer";
- (g) The following set of sanctions shall be enforced for any violation by a bidder of its commitments or undertakings:-
 - (i) Denial or loss of contract;
 - (ii) Forfeiture of the bid security and Performance-cum-Warranty Bond;
 - (iii) Liability for damages to the principal and the competing bidders, and
 - (iv) Debarment of the violator by the principal for an appropriate period of time.
- (h) Bidders are also advised to have a company code of conduct (clearly rejecting the use of bribes and other unethical behaviour) and a compliance program for the implementation of the code of conduct throughout the company.
- (j) The draft Pre-Contract Integrity Pact is attached as Annexure I to this Appendix. The vendors are required to sign them and submit separately along with the technical and commercial offers.
- (k) Every Bidder while submitting techno commercial bid shall also deposit Five Lakhs as IPBG / Security Deposit through any of the instruments mentioned at Para 8 of Annexure I. This would be submitted in a separate



envelope clearly marked as IPBG along with technical and commercial proposals.

7.2 In respect of bids from DPSUs, while a DPSU is not required to sign an Integrity Pact with the Ministry of Defence, the concerned DPSU shall, however, enter in to a Pre-Contract Integrity Pact, on the same lines with their sub-vendors individually, in case the estimated value of each sub-contract(s) exceed ₹ 20 crore, and such subcontract(s) are required to be entered in to by the DPSU with a view to enable DPSU to discharge the obligations arising out of their bid in question in response to this RFP.

AGENTS / AGENCY COMMISSION

8. The Seller confirms and declares to the Buyer that the Seller is the original manufacturer of the stores referred to in this contract and has not engaged any individual or firm, whether Indian or foreign whatsoever, to intercede, facilitate or in any way to recommend to the Government of India or any of its functionaries, whether officially or unofficially, to the award of the contract to the Seller; nor has any amount been paid, promised or intended to be paid to any such individual or firm in respect of any such intercession, facilitation or recommendation. The Seller agrees that if it is established at any time to the satisfaction of the Buyer that the present declaration is in any way incorrect or if at a later stage it is discovered by the Buyer that the Seller has engaged any such individual/firm, and paid or intended to pay any amount, gift, reward, fees, commission or consideration to such person, party, firm or institution, whether before or after the signing of this contract, the Seller will be liable to refund that amount to the Buyer. The Seller will also be debarred from entering into any supply Contract with the Government of India for a minimum period of five years. The Buyer will also have a right to consider cancellation of the Contract either wholly or in part, without any entitlement or compensation to the Seller who shall in such event be liable to refund all payments made by the Buyer in terms of the Contract along with interest at the rate of 2% per annum above LIBOR rate (for foreign vendors) and Base Rate of SBI (for Indian Vendors). The Buyer will also have the right to recover any such amount from any contracts concluded earlier with the Government of India.

ACCESS TO THE BOOKS OF ACCOUNTS

9. In case it is found to the satisfaction of the Buyer that the Seller has engaged an Agent or paid commission or influenced any person to obtain the contract as described in clauses relating to Agents/Agency Commission and penalty for use of undue influence, the Seller, on a specific request of the Buyer shall provide necessary information/inspection of the relevant financial documents/ information.



PRE-CONTRACT INTEGRITY PACT

General

1. Whereas the PRESIDENT OF INDIA, represented by Joint Secretary & Acquisition Manager (Maritime Systems)/Major General & equivalent, Service Headquarters, Ministry of Defence, Government of India, hereinafter referred to as the Buyer and the first party, proposes to procure (Name of the Equipment), hereinafter referred to as Defence Stores and M/s _____ represented by, _____

Chief Executive Officer (which term, unless expressly indicated by the contract, shall be deemed to include its successors and its assignees), hereinafter referred to as the Bidder/Seller and the second party, is willing to offer/has offered the Defence stores.

2. Whereas the Bidder is a private company/public company/partnership/registered export agency, constituted in accordance with the relevant law in the matter and the Buyer is a Ministry of the Government of India performing its functions on behalf of the President of India.

Objectives

3. Now, therefore, the Buyer and the Bidder agree to enter into this pre-contract agreement, hereinafter referred to as Integrity Pact, to avoid all forms of corruption by following a system that is fair, transparent and free from any influence/unprejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to:

3.1 Enabling the Buyer to obtain the desired defence stores at a competitive price in conformity with the defined specifications of the Services by avoiding the high cost and the distortionary impact of corruption on public procurement.

3.2 Enabling Bidders to abstain from bribing or any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also refrain from bribing and other corrupt practices and the Buyer will commit to prevent corruption, in any form, by their officials by following transparent procedures.



Commitments of the Buyer

4. The Buyer commits itself to the following:-

4.1 The Buyer undertakes that, no official of the Buyer, connected directly or indirectly with the contract will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the Bidder, either for themselves or for any person, organisation or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the Contract.

4.2 The Buyer will, during the pre-contract stage, treat all Bidders alike and will provide to all Bidders the same information and will not provide any such information to any particular Bidder which could afford an advantage to that particular Bidder in comparison to other Bidders.

4.3 All the officials of the Buyer will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.

5. In case of any such preceding misconduct on the part of such official(s) is reported by the Bidder to the Buyer with full and verifiable facts and the same is prima facie found to be correct by the Buyer, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the Buyer and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the Buyer the proceedings under the contract would not be stalled.

Commitments of Bidders

6. The Bidder commits himself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of his bid or during any pre-contract or post contract stage in order to secure the contract or in furtherance to secure it and in particular commits himself to the following:

6.1 The Bidder will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the Buyer, connected directly or indirectly with the bidding process, or to any person, organisation or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the Contract.

6.2 The Bidder further undertakes that he has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the Buyer or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the Contract or any other Contract with the



Government for showing or forbearing to show favour or disfavour to any person in relation to the Contract or any other Contract with the Government.

6.3 The Bidder will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.

6.4 The Bidder will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.

6.5 The Bidder further confirms and declares to the Buyer that the Bidder is the original manufacturer/integrator/authorised government sponsored export entity of the Defence stores and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the Buyer or any of its functionaries, whether officially or unofficially to the award of the contract to the Bidder, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company or Agent in respect of any such intercession, facilitation or recommendation.

6.6 The Bidder, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payments he has made, is committed to or intends to make to officials of the Buyer or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.

6.7 The Bidder shall not use improperly, for purposes of competition or personal gain or pass on to others, any information provided by the Buyer as part of the business relationship regarding plans, technical proposals and business details, including information contained in any electronic data carrier. The Bidder also undertakes to exercise due and adequate care lest any such information is divulged.

6.8 The Bidder commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts. Complaint will be processed as per Guidelines for Handling of Complaints in vogue. In case the complaint is found to be vexatious, frivolous or malicious in nature, it would be construed as a violation of Integrity Pact.

6.9 The Bidder shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.

7. **Previous Transgression**

7.1 The Bidder declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India, that could justify bidders exclusion from the tender process.



7.2 If the Bidder makes incorrect statement on this subject, Bidder can be disqualified from the tender process or the contract and if already awarded, can be terminated for such reason.

8. **Integrity Pact Bank Guarantee (IPBG)**

8.1. Every bidder, while submitting commercial bid, shall submit an Integrity Pact Bank Guarantee for an amount of **05 Lakhs** in favour of the Buyer in Indian Rupees only.

(i) Guarantee will be from an Indian Public Sector Bank promising payment of the guaranteed sum to the Ministry of Defence, Government of India, represented on behalf of the President of India, on demand within three working days without any demur whatsoever and without seeking any reasons whatsoever. The demand for payment by the buyer shall be treated as conclusive proof for payment. A model Bank Guarantee format is enclosed.

8.2. The Integrity Pact Bank Guarantee (IPBG) shall be valid upto Three years from the date of submission. However, Bidders will be required to extend the Integrity Pact Bank Guarantee, as and when required by the Buyer. In the case of the successful bidder, validity of the Integrity Pact Bank Guarantee will be extended upto the satisfactory completion of the Contract. In case a vendor unilaterally decides to withdraw from the procurement scheme or has been declared non-compliant and if he wishes to withdraw his IPBG, he may do so provided he gives an undertaking that he has no complaints and will not make any complaints in the case.

8.3 In the case of successful bidder a clause would also be incorporated in the Article pertaining to Performance-cum-Warranty Bond in the Purchase Contract that the provisions of Sanctions for Violation shall be applicable for forfeiture of Performance Bond in case of a decision by the Buyer to forfeit the same without assigning any reason for imposing sanction for violation of this pact.

8.4 The provisions regarding Sanctions for Violation in Integrity Pact include forfeiture of Performance-cum-Warranty Bond in case of a decision by the Buyer to forfeit the same without assigning any reason for imposing sanction for violation of Integrity Pact.

8.5 No interest shall be payable by the Buyer to the Bidder(s) on IPBG for the period of its currency.

9. **Company Code of Conduct**

9.1 Bidders are also advised to have a company code of conduct (clearly rejecting the use of bribes and other unethical behaviour) and a compliance program for the implementation of the code of conduct throughout the company.



10. **Sanctions for Violation**

10.1 Any breach of the aforesaid provisions by the Bidder or any one employed by him or acting on his behalf (whether with or without the knowledge of the Bidder) or the commission of any offence by the Bidder or any one employed by him or acting on his behalf, as defined in Chapter IX of the Indian Penal Code, 1860 or the Prevention of Corruption Act 1988 or any other act enacted for the prevention of corruption shall entitle the Buyer to take all or any one of the following actions, wherever required:

- (i) To immediately call off the pre-contract negotiations without assigning any reason or giving any compensation to the Bidder. However, the proceedings with the other Bidder(s) would continue.
- (ii) The IPBG/Performance-cum-Warranty Bond shall stand forfeited either fully or partially, as decided by the Buyer and the Buyer shall not be required to assign any reason therefore.
- (iii) To immediately cancel the contract, if already signed, without giving any compensation to the Bidder.
- (iv) To recover all sums already paid by the Buyer, in case of an Indian Bidder with interest thereon at 2% higher than the prevailing Base Rate of SBI and in case of a Bidder from a country other than India with interest thereon at 2% higher than the LIBOR. If any outstanding payment is due to the Bidder from the Buyer in connection with any other contract for any other defence stores, such outstanding payment could also be utilised to recover the aforesaid sum and interest.
- (v) To encash the advance bank guarantee and Performance-cum-Warranty Bond if furnished by the Bidder, in order to recover the payments, already made by the Buyer, along with interest.
- (vi) To cancel all or any other Contracts with the Bidder.
- (vii) To debar the Bidder from entering into any bid from the Government of India for a minimum period of five years, which may be further extended at the discretion of the Buyer.
- (viii) To recover all sums paid in violation of this Pact by Bidder(s) to any Agent or broker with a view to securing the contract.
- (ix) If the Bidder or any employee of the Bidder or any person acting on behalf of the Bidder, either directly or indirectly, is closely related to any of the officers of the Buyer, or alternatively, if any close relative of an officer of the Buyer has financial interest/stake in the Bidder's firm, the same shall be disclosed by the Bidder at the time of filing of tender. Any failure to disclose the interest involved shall entitle the Buyer to debar the Bidder from the bid process or rescind the contract without payment of any compensation to the Bidder. The term "close relative"



for this purpose would mean spouse whether residing with the Government servant or not, but not include a spouse separated from the Government servant by a decree or order of a competent court; son or daughter or step son or step daughter and wholly dependent upon Government servant, but does not include a child or step child who is no longer in any way dependent upon the Government servant or of whose custody the Government servant has been deprived of by or under any law; any other person related, whether by blood or marriage, to the Government servant or to the Government servant's wife or husband and wholly dependent upon Government servant.

(x) The Bidder shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the Buyer and if he does so, the Buyer shall be entitled forthwith to rescind the contract and all other contracts with the Bidder. The Bidder shall be liable to pay compensation for any loss or damage to the Buyer resulting from such rescission and the Buyer shall be entitled to deduct the amount so payable from the money(s) due to the Bidder.

(xi) In cases where irrevocable Letters of Credit have been received in respect of any contract signed by the Buyer with the Bidder, the same shall not be opened.

10.2 The decision of the Buyer to the effect that a breach of the provisions of this Integrity Pact has been committed by the Bidder shall be final and binding on the Bidder, however, the Bidder can approach the Independent Monitor(s) appointed for the purposes of this Pact.

11. Fall Clause

11.1 The Bidder undertakes that he has not supplied/is not supplying the similar products, systems or subsystems at a price lower than that offered in the present bid in respect of any other Ministry/Department of the Government of India and if it is found at any stage that the similar system or sub-system was supplied by the Bidder to any other Ministry/Department of the Government of India at a lower price, then that very price, with due allowance for elapsed time, will be applicable to the present case and the difference in the cost would be refunded by the Bidder to the Buyer, even if the contract has already been concluded.

11.2 The Bidder shall strive to accord the most favoured customer treatment to the Buyer in respect of all matters pertaining to the present case.

12. Independent Monitors

12.1 The Buyer has appointed Independent Monitors for this Pact in consultation with the Central Vigilance Commission (**Names and Addresses of the Monitors as amended from time to time, can be referred to on the MoD website at www.mod.nic.in**).



12.2 As soon as the integrity pact is signed, the buyer shall provide a copy thereof, along with a brief background of the case to the Independent Monitors.

12.3 The Bidder(s), if they deem it necessary, may furnish any information as relevant to their bid to the Independent Monitors.

12.4 If any complaint with regard to violation of the IP is received by the buyer in a procurement case, the buyer shall refer the complaint to the Independent Monitors for their comments/enquiry.

12.5 If the Independent Monitors need to peruse the relevant records of the Buyer in connection with the complaint sent to them by the Buyer, the Buyer shall make arrangement for such perusal of records by the Independent Monitors.

12.6 The report of enquiry, if any, made by the Independent Monitors shall be submitted to the head of the Acquisition Wing of the Ministry of Defence, Government of India for a final and appropriate decision in the matter keeping in view the provision of this Pact.

13. **Examination of Books of Accounts**

In case of any allegation of violation of any provisions of this Integrity Pact or payment of commission, the Buyer or its agencies shall be entitled to examine the Books of Accounts of the Bidder and the Bidder shall provide necessary information of the relevant financial documents in English and shall extend all possible help for the purpose of such examination.

14. **Law and Place of Jurisdiction**

This Pact is subject to Indian Law. The place of performance and jurisdiction is the seat of the Buyer i.e. New Delhi.

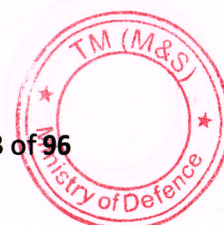
15. **Other Legal Actions**

The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

16. **Validity**

16.1 The validity of this Integrity Pact shall be from date of its signing and extend up to 5 years or the complete execution of the contract to the satisfaction of both the Buyer and the Bidder/Seller, whichever is later.

16.2 Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intentions.



17. The Parties hereby sign this Integrity Pact at _____ on _____

BUYER

BIDDER

MINISTRY OF DEFENCE,
GOVERNMENT OF INDIA

CHIEF EXECUTIVE OFFICER

Witness

Witness

1. _____

1. _____

2. _____

2. _____



Appendix 'H'
(Refers to Para 8.1 of
Pre-Contract Integrity Pact)

FORMAT OF INTEGRITY PACT BANK GUARANTEE (IPBG)

In consideration of President of India (hereinafter called the Government) represented by Joint Secretary and Acquisition Manager/Major General or equivalent, SHQ./Coast Guard, Ministry of Defence, on the first part and M/s _____ of (hereinafter referred to as Bidder) on the Second part, having agreed to accept a sum of ₹ _____ (₹ _____) in the form of Bank Guarantee towards Integrity Pact for the Request for Proposal for procurement of _____ we _____ (Name of the Bank), (hereinafter referred to as the Bank), do hereby undertake to pay to the Government on demand within 3 (three) working days without any demur and without seeking any reasons whatsoever, an amount not exceeding ₹. _____ (₹ _____) and the guarantee will remain valid upto Three years from the date of submission i.e. _____ (date). The Integrity Pact Bank Guarantee shall be extended from time to time as required by the buyer.

We undertake not to revoke this guarantee during this period except with the previous consent of the Government in writing and we further agree that our liability under the Guarantee shall not be discharged by any variation in the term of the commercial offer. No interest shall be payable by the Government to the Bidder (s) on the guarantee for the period of its currency.

Dated this day _____ of 20 _____

For the Bank of _____

(Agent /Manager)



Appendix 'J'
(Refer to Para 24a of RFP)

CERTIFICATE – MALICIOUS CODE

(To be rendered on Prime Vendor Letter head)

1. This is to certify that the Hardware and the Software being offered, as part of the Contract, does not contain embedded malicious code that would activate procedures to:-

- (a) Inhibit the desired and designated function of the equipment.
- (b) Cause physical damage to the user or equipment during the exploitation.
- (c) Tap information resident or transient in the equipment/networks.

2. The firm will be considered to be in breach of the procurement contract, in case physical damage, loss of information or infringements related to copyright and Intellectual Property Rights (IPRs) are caused due to activation of any such malicious code in embedded software.

(Signed)
Designation, Name and Address of firm

Date:

Place:

